

SKIN DIVER

MAGAZINE

50c

July
1961
ACME

JULIE ADAMS

stars in

UNDERWATER
CITY

Page 24

ALONE in SHARK WATERS

Glasspar Contest

The Warship Vasa

Killer Whale

Diving and
Your Body



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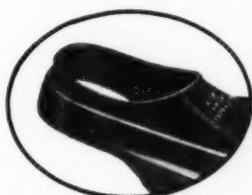
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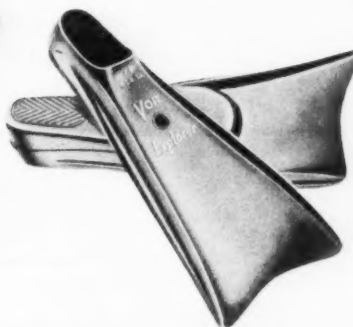
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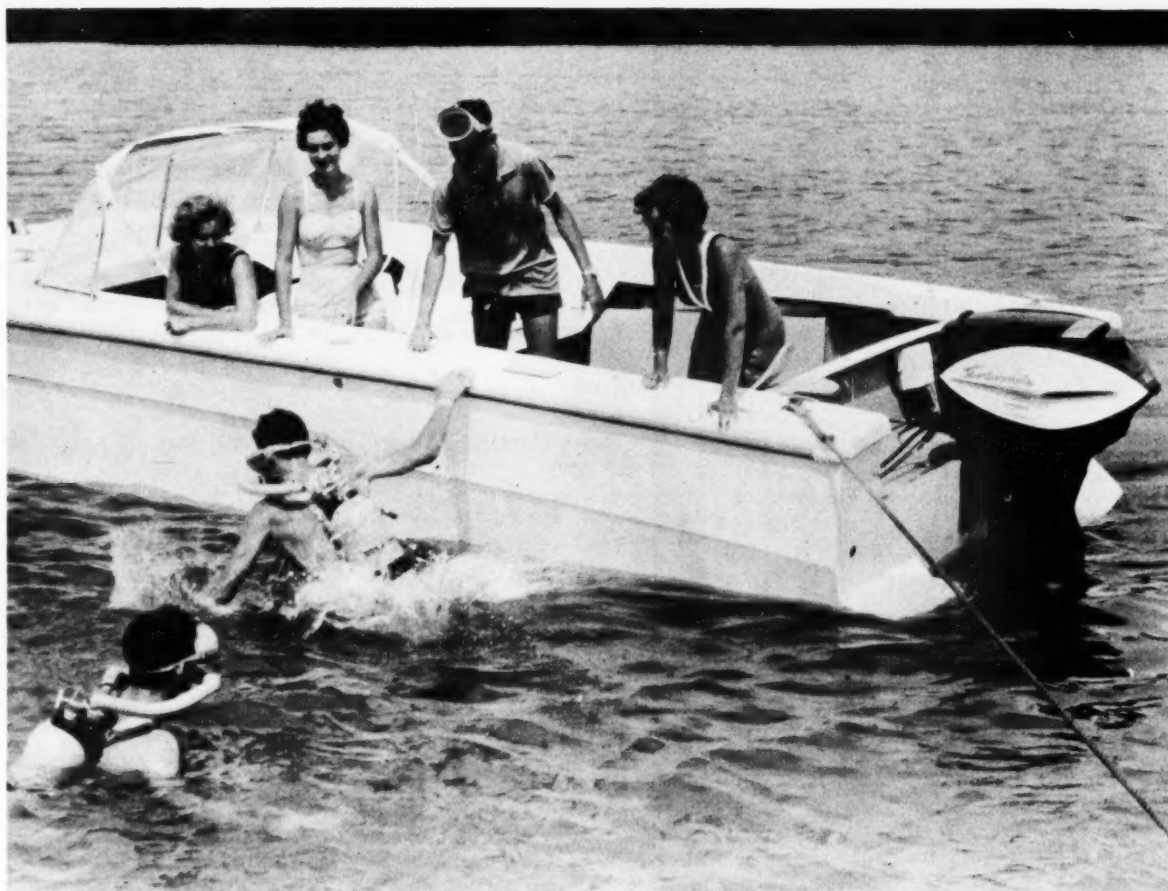
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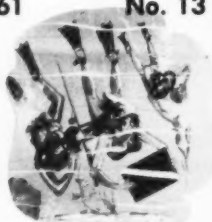
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COVER

Diving off Hawaii is beautiful Julie Adams main pastime, though she does plan to dive in the Mediterranean this summer. Miss Adams is star of upcoming motion picture "The Underwater City" featured on page 24, in which she was able to combine work with hobby. Columbia Pictures photo by Ed Cronenweth.



DEVOTED TO THE UNDERWATER WORLD



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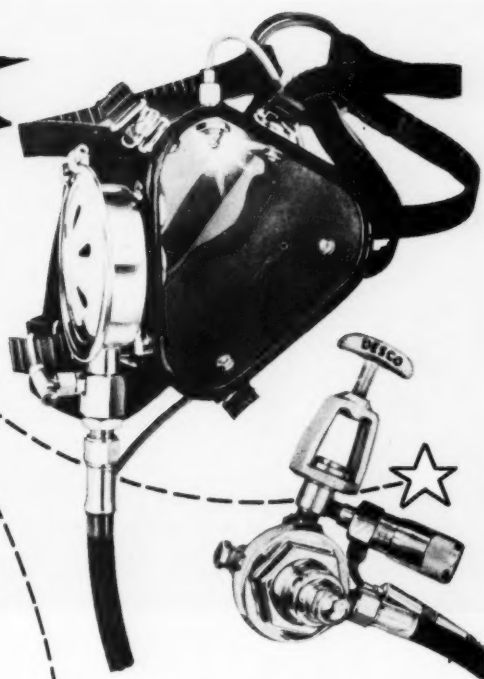
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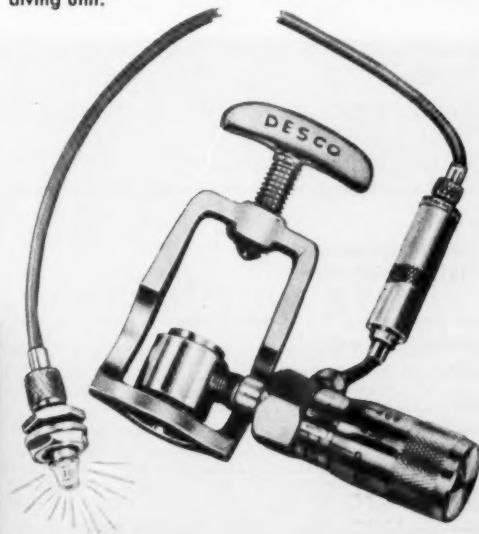
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SDM OPINION . . .

LET'S talk about SDM's contents for a moment. You are familiar with them. We tend to stick strictly to diving subjects, with some diving fiction thrown in occasionally. We make every effort to steer clear of "Mickey Mouse" diving literature and diving gear so that our readers can come to depend on advertisers in our pages.

But are we publishing exactly what you want? We can never be sure, so we would like some indication from you.

And at the same time we would like to mention some of our requirements regarding scripts and pictures in case you have considered sending a story. After all, the diving trips you read about in previous issues were probably not written by a professional writer. The authors were divers like yourself, who felt that other divers would be interested in their experiences. They were right. Other divers are interested in what you do, where you go, conditions you meet and adventures you have.


So if you have the urge to be published, send in your story typewritten, double-spaced with as many eight by ten pictures as you have. It could be of great interest to other readers. If you want the story returned, please include a self-addressed envelope.

But maybe you don't have a desire to write. You can still help guide the contents of the magazine. If you hear of anything pertaining to diving, see anything or know of anything that you think should appear in SDM, let us know about it. We will attempt to contact the parties involved to get the story.

Now about past contents. We would appreciate it if you would take the time to comment on your favorite stories, features, etc. Take "3000 Years Under the Sea" for example, which appeared in our April issue. Did you like it? How about the medical articles such as "Visual Problems of Skin Diving," "Why a Physical Examination?", and "Medicine Under Pressure." And then we have used treasure and salvage stories. "Lexington's Gold" was one of these in our April issue, and in May we used "Wreck of the ZPG-3W." This month it's the fascinating story of the "Warship Vasa." Many, many other stories filled our pages in past issues on which we would appreciate comment.

Fiction is another field in which we try to please readers. In May we ran John Kruse's exciting story "Duel in the Sea" and this issue contains another Kruse story, "Alone in Shark Waters." What do you think of them?

Continuing features such as "Driftwood," "News Current," "Oceanography," "Olney's Overseas Observations," and "Personality Spotlight" might fall under your critical gaze.

So what we want is your general feeling about Skin Diver Magazine plus any specific comments on favorite stories and features. From these comments we will schedule future columns, features and fiction. 



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Reader's Ripples

... I expect to be in Canada between July 20 and Sept. 10. We own a bungalow on Lake Sergeant, Quebec. I would like to know if there is anyone in that area whom I might go diving with this summer.

Keep up the excellent work of your excellent magazine.

Louis E. Leclerc
316 W. 101st St.
New York 25, N. Y.

... As brother-in-law of the late Conrad Limbaugh as well as his colleague in marine biology, I am undertaking to write his notes and memoirs. I further intend to organize Connie's biography as soon as all available materials are collected, and it is concerning this last that I am writing to you.

Please, will you send me—in as much detail as you can—those personal remembrances which only you can provide, although they may include experiences shared by other friends: when you knew Connie and for how long; your personal impressions of him; and any interesting anecdotes that you remember from your association with him personally or professionally.

Only with your help and that of Connie's other friends will I be able to compose an authentic biography of Connie, the man and the scientist, known and admired by so many people.

I shall deeply appreciate your contribution to my endeavor.

Howard M. Feder, Ph.D.
Biology Department
Hartnell College
156 Homestead Avenue
Salinas, California

... I am interested in obtaining more detail on converting the SCR 625 Metal Detector for underwater use from author John C. Bender (May, 1961).

Frank Henson
2166 Clinton Ave.
New York 57, N. Y.

Letters have poured in from all over the world requesting more information on Mr. Bender's method of converting the SCR 625. We have requested a longer, more detailed article which should appear in the very near future.

... I would like to thank the staff of Skin Diver Magazine for the exciting fiction feature "Duel in the Sea" by John Kruse. If other diver-readers enjoyed it as much as I did, I'm confident we'll see more short fiction features in future issues.

Bill Wire
Osprey Skin Divers
Harrington, Delaware

Mr. Wire was not alone in his admiration for Mr. Kruse's story. By popular demand, we are printing "Alone in Shark Waters" by the same author in this issue, page 44. Fiction will continue as long as readers ask for it.

... I plan to spend several days in Trinidad, B. W. I., this summer and would like very much to contact some skin divers in the area of Port of Spain.

Fran Brandl
Box 449
Balboa, Canal Zone

... Why don't you publish another story about the U. S. Navy Frogmen, as you did in the March issue of SDM (Navy Frogmen and Underseas Disposalers)? I am sure other readers of SDM would like to read more about our country's underseas fighters.

Lee Davidson
1913 Atapha Nene
Tallahassee, Florida

... I am thirty years old, fully equipped, and ready to go. I would appreciate contact from some active scuba diving clubs either in Brooklyn or Long Island willing to accept a very avid diver with limited experience.

Harris Lubow
919 Park Place
Brooklyn 13, New York

... Thank you for the listing under films available, however mine should be listed under 16 MM.

Rental	
16 MM color "Conservation at Work"	13 minutes.....\$ 5.00
16 MM color "Death's Door"	14 minutes..... 5.00
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Chuck Stanley 1310 74th St. Kenosha, Wis.	

... Is there any diver in the Long Beach area with a car, who would be interested in a diving buddy who would pay for the gas to and from the diving areas. I'm 24, been diving for over three years, and a qualified Navy diver. I would appreciate any help I can get from individuals or clubs.

Lee Cote
YMCA Box #427
600 Long Beach Blvd.
Long Beach, Calif.

I've subscribed to SDM for a year and a half now, and enjoy it and the newly established newspaper very much. This summer I will be working in the area around Meeteetse, Wyoming, and I would like to know 1. if there is diving in that area, and 2. what are the conditions. I'd appreciate hearing from any divers in that area, so that I can be advised whether or not to lug my equipment across the country.

Bob Merrill
5 North Massachusetts Hall
Dartmouth College
Hanover, New Hampshire

... My wife and I are planning a scuba diving vacation to the Springs in Florida. It will be in July or August. We are both inexperienced divers.

Should we drive or fly? What is the air station situation? Should we bring our tanks or rent them? Are there any cameras for rent? What is the lodging situation? Which spring or springs should we consider? Are there any springs commercialized enough to have descriptive brochures?

Brian W. Brooks
257 Campbell Ave
West Haven, Conn.

Perhaps a Florida diver will acquaint Mr. Brooks with local conditions... and the possible dangers of spring diving.

... I am 14 years old and have recently become interested in skin diving. I would like to know of some ways that I can use my hobby to make money for more equipment.

Van Allegood
Box 56
Moultrie, Ga.

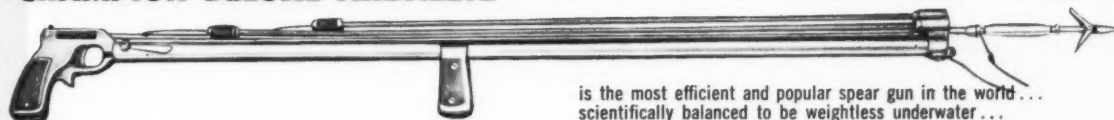
Some of our young readers, and a few older ones, are salvaging fishing lures and gear, refinishing and selling it. It doesn't bring in a million, but it's surprising how it adds up. Maybe readers have other ideas in mind.

(Continued on Page 10)

ARBALETE GUNS

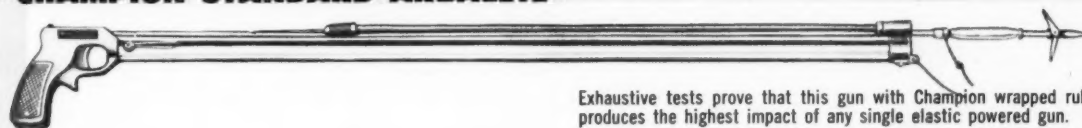
In the business of fine guns certain names are known the world over... Remington — Winchester — Colt are a few that come quickly to mind, but only one name stands out in the underwater world of spear guns, and that name is Champion "ARBALETE."

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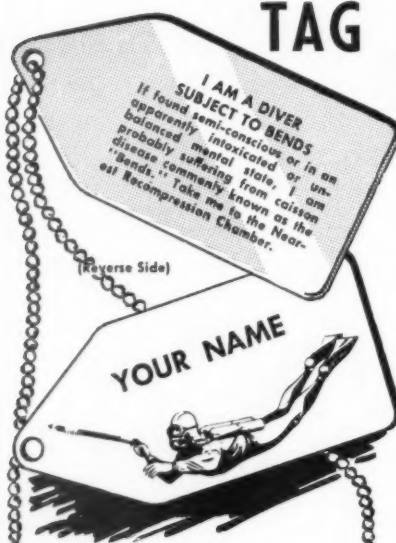
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Reader's Ripples

(Continued from Page 8)

... I have heard someone say something about a shallow water lung. Is there one and what is its size? How much air will a diver receive at 50 feet? If there isn't a shallow water lung then what is the 38 cubic foot size and how deep can a diver go with two of these tanks?

Jack Lzura
616 S. 3rd St.
W. Dundee, Illinois

Tank size, in the respect you are thinking, does not determine depth. Relatively speaking, you can go just as deep with a 38 as with a 72, only you can't stay as long. Remember, we said relatively speaking. Depth depends on the diver's ability, amount of air, decompression time needed, etc. It would be impossible to make a specific statement on how much air you will receive except to say that at fifty feet, providing your regulator is working properly for you, you will receive the right amount. The same goes for the depth of twin 38's. It depends on the diver ... the air is there.

... I wish to obtain information on our common fresh water turtle. I understand not too much study has been made.

Anthony W. Milbocker
Johannesburg, Michigan

We would suggest you contact your local Department of Fish and Game as the most logical source of information.

... Does a written course exist where one could practice scuba lessons by himself in his spare time rather than attend a class?

Ron Rowe
703 East Second
Eureka, Kansas

We recommend attending classes to get the full benefit of the instructor's experience although there are some good books on the subject. To mention a few, "Basic Scuba," by Fred M. Roberts, "Science of Skin and Scuba Diving," by a group of experts and "The Skin Diver," by Elgin Ciampi. All are available through SDM's Underwater Bookshelf.

... Could you tell me the addresses of Keith Larson, Jeremy Slate, Captain Cousteau?

Ricky Gibson
909 Vine St.
Lansing, Michigan

Keith Larson and Jeremy Slate can be reached c/o ZIV Television, 7324 Santa Monica Blvd., Los Angeles, Calif. and Captain Cousteau at U. S. Divers, 3323 West Delhi Road, Santa Ana, Calif.

... Would you please forward me the addresses of firms where surgical rubber tubing is available. If possible, perhaps a supplier will reply giving sizes and prices.

G. J. Smith
Vacuum Oil
Madang, New Guinea

Most larger drug and surgical supply houses, and many corner drugstores, stock rubber tubing suitable for spearguns. Here's hoping one of them will contact you.



... Shown are some pictures of plexiglass water tight cases which I have made recently. I have found them inexpensive, \$1.50 for the light meter case and \$.75 for the watch case, and water tight in pressure tests up to 125 feet. Brass bolts, wing nuts, and washers were used with gum rubber gaskets. The construction is very simple, a body is cut out to the shape of the object, leaving ample space on either side as a border through which the bolts are passed. Then a back is glued on. The last step is the cutting of the gasket and the fitting of the cover. The plastic and the glue is least expensive if obtained through the Cadillac Plastic Co., 727 W. Lake St., Chicago 6, Ill. I read your magazine and enjoy it very much.

George W. Fraker
245 Park Ave.
Glencoe, Ill.

... I am compiling a list of divers in the state of Vermont so that I might contact them further concerning the establishment of a Vermont Congress to the Northeast Council of Skin Divers. I would like all divers in Vermont to contact me so that I might complete this file of names.

Edward A. Eagan Jr.
25 Mt. View
Chester, Vermont

... Can you put us in contact with an American skin diving club who would be interested in an affiliation with our club. It would be something like the system of twin towns in Europe.

J. P. Aulanet
CRESM
8, Avenue Malcenre
Pau (B.-P.) France

... This summer I will be working at Camp Winnebago, which is located near Perry Sound, Ontario. I would appreciate information concerning diving conditions, compressed air stations, etc., in this area.

Tom Friedman
3585 Meadowbrook Blvd.
Cleveland Heights 18, Ohio

(Continued on Page 12)

THE ONLY LUNGS BETTER MADE "ARE YOUR OWN!"

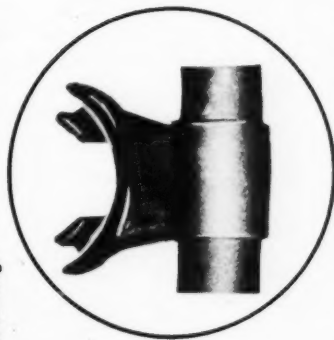
DACOR DART Two Stage Regulator

The easiest, smoothest breathing regulator conceivable—(Large "piston action" and Teflon bearing for demand valve lever provides less friction and faster action). Entirely new "comfort" mouthpiece designed exclusively for single hose application. Design and weight of regulator with proper positioning of mouthpiece is so well balanced that the feeling of weight or pull on the mouth is completely eliminated. Compressor and air gauge connections.

Regulator	\$ 67.00
Complete Lung with Standard Valve	129.50
Complete Lung with Reserve Valve	149.50
Double Tank Lung with Reserve Valve	214.50
Dart Pressure Gauge	20.00

DACOR NEW MOUTHPIECE

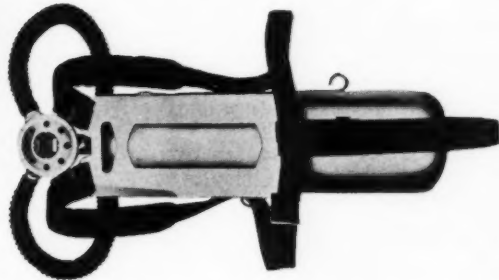
Sensationally improved mouthpiece and hose assembly for "Dial-A-Breath" regulator. The famous "Comfort" mouthpiece section remains of the same size and design. Larger body and non return valves allow more freedom of air movement. Retains small appearance and provides 30% easier breathing.



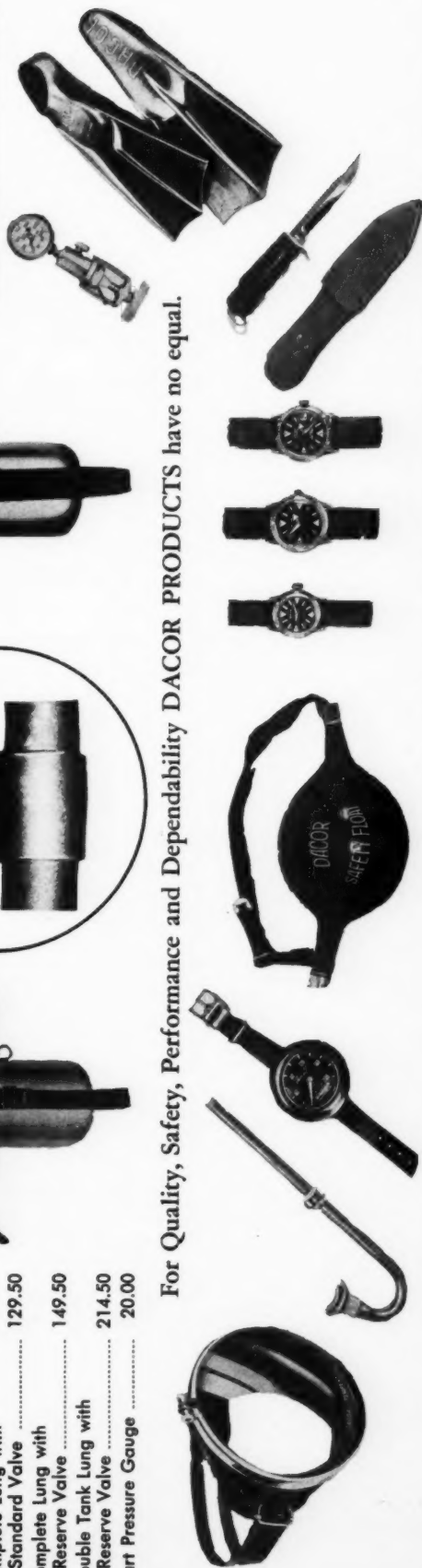
DACOR "DIAL-A-BREATH" Double Diaphragm Two Stage Regulator

Over six years of proven quality, safety, superior performance and service free operation. Snug fitting D-Pak with new "No-Slip" slide permits quick adjustment of shoulder harness.

Regulator	\$ 82.00
Complete Lung with Standard Valve	144.50
Complete Lung with Reserve Valve	164.50
Double Tank Lung with Reserve Valve	229.50



For Quality, Safety, Performance and Dependability DACOR PRODUCTS have no equal.



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CORPORATION

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SUIT KITS STRAIGHT FROM DETROIT

3/16" SKIN 2 SIDES \$34.00

1/4" SKIN 2 SIDES \$34.00

Plus Freight and C.O.D. Charges

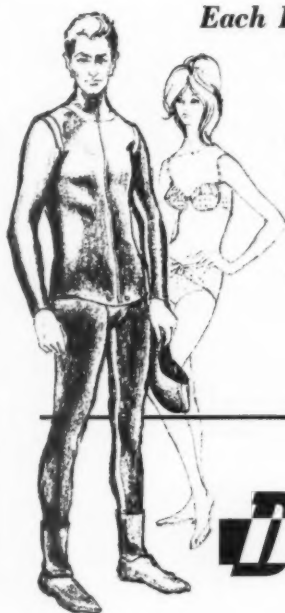
Each Kit Includes . . .

- 40"x120" A-1 BLACK NEOPRENE

Not pre-cut! We give you the benefit of a full sheet of neoprene

- BLACK CEMENT
- FIVE ZIPPERS
- SNAPS
- YELLOW REINFORCING
- PATTERN . . .

Excellent indeed, simple, foolproof and complete. This style has proved to be practical through seasons of diving in cold Michigan waters



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One-Half, Balance C.O.D. to . . .

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KE 3-5974

You won't dive too far or too fast if you keep your eye on this new Taylor Combination Depth Gage and Compass. Luminous pointer and markings in 5 foot divisions to 140 feet. Accurate to within 2.8 feet. Liquid-filled compass has directional line on dome that may be positioned for greatest convenience. Green rubber case 2" in diameter. #2060, \$15.95. Also: Taylor Depth Gage #2059, \$10.95... Compass #2959, \$6.95... Thermometer #5282, \$2.50. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Ontario.

**FOR SAFE DIVING YOU
NEED A TAYLOR COMBINATION
DEPTH GAGE and COMPASS**



Taylor Instruments MEAN ACCURACY FIRST



Reader's Ripples

(Continued from Page 10)

. . . My committee and myself were very pleased to see that you found space to publish a photograph of the winners of our 1960 Competition at Swanage, Dorset. Thank you for your support.

We would like to draw your attention to the coming championships so that you might include it in your program of events. The date is Saturday, August 19th, 1961, and the meeting will take place on the South Coast, at Swanage, Dorset. Should there be any skin diving U. S. Service Personnel in this country we should be very pleased to see them, and assure them of a warm welcome.

All details regarding the Competition can be obtained from the following.

P. T. Smith
Organizing Secretary
19 Westover Road
Bournemouth
Hampshire, England

. . . I am thinking about building a two man submarine. Do you have any plans available or know where I could obtain some?

H. R. Peacock
8931 Hally Lane
Arlington, California

Sorry, we have none and wouldn't know where to suggest you get some. The Navy, perhaps?

. . . I have been reading SDM for a year now and I thoroughly agree with Ken Edwards suggestion in SDM for April, 1961.

Bill McDonald
439 Ferguson N.
Hamilton, Ontario

Mr. Edwards suggestion dealt with a "do it yourself" series, which we are presently working on. See page 35.

. . . During June and July I will be visiting the coastal diving areas of California and Mexico. I would like to hear from anyone with information on this area and from a diver who might like to dive with me. I'm particularly interested in underwater photography.

Sam Leathers
346 S. Forest St.
Bellingham, Washington

. . . This last week our county held its annual conservation meeting and I was shocked by the reception of skin divers. I have just moved to this part of Wisconsin, where divers are treated like dirt. Please join with us to help this situation so no other community does the same.

William J. Smith
22 N. Pelham St.
Rhinelander, Wisconsin

. . . Would you please send me plans for building a speargun?

Del Lessard
105 Edmond Street
Newington 11, Conn.

As soon as it is ready, we plan to publish plans for one of the more popular guns, the "Addict's" gun. Until then we suggest you write to some of the gun manufacturers listed in SDM for plans and suggestions.

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Snark II, the
most popular of all
single-hose regulators.
Another Nemrod
exclusive. \$32⁵⁰

Snark III, exclusive
Nemrod regulator
with triple-stage safety
features. \$59⁹⁵

Nemrod REGULATORS and TANKS **SEAMLESS**

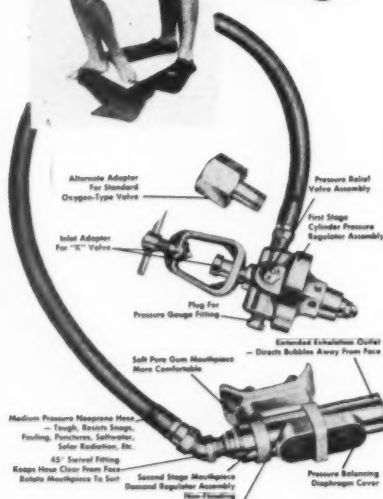
ATHLETIC DIVISION • UNDERWATER EQUIPMENT • THE SEAMLESS RUBBER COMPANY, NEW HAVEN 3, CONN.

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Complete PRO-"lung" information for underwater fun, adventure, profit. Spear fishing, treasure hunting, exploring, boat maintenance, salvage, life-saving, utility diving. Tell-all instructions and tech-data by registered, licensed experts. New PRO-61 models, accessories. Save 1/2 or more with PRO "Factory-to-You" offer. Send for **FREE Catalog-Manual** now.

ROSE AVIATION, Inc.
Box 3061 Aurora, Ohio



Reader's Ripples

(Continued from Page 12)

. . . I am interested in teaching my 15-month-old son to swim. Do any of your readers have any knowledge of teaching infants and toddlers to swim? I have exhausted all known sources in our state on this subject.

Mrs. Wm. Larenzen
6000 S. Roberts Ave.
Cudahy, Wisconsin

Your local Red Cross or YMCA offices should have information or be able to direct you to a source.

. . . I have been interested in skin diving for some time however I always wondered about making a decent living in diving. Can you help me out?

Lester S. Wallerstein
225 W. 106 Street
New York 25, N. Y.

As a start you might contact the diving schools listed in *SDM* for brochures and employment opportunities. Also, perhaps some career divers will answer.

. . . I am interested in obtaining a commercial salvage license and would appreciate any information your readers might have on how to obtain this.

Lawrence M. Theilen
US Coast Guard Cutter
Kukui (WAK-186)
Honolulu, Hawaii

Local regulations in the area you decide to work will probably determine how such a license can be obtained.

. . . What is the speargun that is powered by a revolver cartridge?

Jim Baker
202 E. Greenfield Ave.
Pleasantville, N. J.

The gun you refer to is the *Mordem Speargun*, powered by a .38 caliber bullet.

. . . I would like to know how to care for a new wet type suit.

Harry Stone
4667 Pt. Loma Ave.
San Diego, California

They are tough but should be handled gently. Use some type of powder or non-detergent lubricant to aid in donning the suit and always wash it in clean, fresh water after use. Store it hanging, without folds if possible, in a cool, dark place after it is thoroughly dry.

Local Editor Solves Spearfishing "Problem"

In an article that would be comical if it were not for the tragic implications, Frank Gianelli of the "Arizona Republic" has put forth a way for fishermen to rid themselves of the bother of spearfishermen. The Phoenix newspaperman, after an unusually biased tirade against divers who spear fish, comments "Everything isn't in favor of the divers, though."

Mr. Gianelli suggests that the Divers Flag, in regular use now by Arizona's divers, be used as a beacon by "skunked" fishermen. It is his thought that "a propeller turning 4,000 rpm is a rather convincing rebuttal" and that "a few fast passes over the region being worked might solve the problem once and for all."

This, according to Mr. Gianelli, would solve the problem of "underwater fishermen have 8 to 10 times better success than surface men." It would also ease the "galling futility surface fishers feel."

Interested divers might contact either Mr. Gianelli at the newspaper or his opponent, John O. Moore, President of the Phoenix Sea Raiders at 1405 W. First St., Mesa, Arizona. ➤

Stan Waterman's Underwater Films Successful

With a ready-to-go publicity package, including special TV shorts, Stan Waterman's two films, "Water World" and "3000 Years Under the Sea" have been well used by clubs from Texas to Maine. In Detroit over a thousand attended the Michigan Skin Diving Council's showing of "Water World," and the New England Mutual's Theatre in Boston was filled to capacity for the same show, part of the Boston Sea Rover's annual presentation. Two Texas clubs, the YMCA Desert Divers of Wichita Falls and the Skinscuba Diving Club of Amarillo report excellent crowds and substantial profits as well as fine publicity in their areas. As part of the regular film lecturing that Stan does from coast to coast during the year, "Water World" last year was presented by the National Geographic Society in Washington at Constitution Hall and drew over 5,000 persons in two showings. "3000 Years Under the Sea" has just been booked for a return engagement for Fall of this year. For information on arranging club-sponsored showings of Stan's films write: Stan Waterman, 16 Hunter Rd., Princeton, N. J. A sample publicity package will be sent with the reply. ➤

Second Annual Skin Diving Contest of Maryland

The contest will be held at Lewes, Delaware, August 27, 1961. Any postponement due to inclement weather, will be broadcast by leading local radio stations. The large stone breakwater approximately five miles from the coastline will be the site of this event. Divers are each given an area one hundred feet wide and may dive as far out as possible, toward the sea or on the bay side. Use of scuba or free spears (Hawaiian sling type) is not allowed. Transportation to the breakwater and back will be provided. There will be a two dollar fee for this service and an entrance fee of two dollars. The contest starts at 8:00 a.m. sharp so you must be at the beach by 7:00 a.m. There will be two one-half hour breaks and the contest ends at 4:00 p.m. Judging will be done on return to the beach and all decisions will be final. ➤

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Underwater Reading?
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revised listings in
SDM's
UNDERWATER
BOOKSHELF
Page 52**

2ND ANNUAL *Glasspar* GAME FISH DERBY



WIN THIS GLASSPAR

Here's a diver's dream come true . . . the Glasspar 16' Avalon (L.O.A. 15' 10"). Ideal for every kind of water sport . . . and with plenty of room for a party of divers and their gear. Made of low maintenance fiber glass . . . vinyl upholstery . . . safe double bottom flotation. One of the world's most popular runabouts from the world's largest manufacturer of fiber glass outboard boats. Divisions in: Santa Ana, California; Olympia, Washington; Sherman, Texas; Nashville, Tennessee; Sturgis, Michigan; and Colonial Heights, Virginia.

THE GLASSPAR GAMEFISH DIVING DERBY. Here's all you need to do to enter and win a GLASSPAR 16' AVALON. Using any kind of skin diving equipment and any kind of spearing device you choose, you must single-handedly take a fish in the species

listed (see graph). Each species is evaluated by points determined by multiplying the weight of the fish by the number of points for your species. Fill out the application below and attach it to a photograph of yourself and the fish. Have your entry signed by a GLASSPAR dealer or a dive shop operator. (The photo of the winner will appear in SKIN DIVER Magazine.)

Send the application and photo to GLASSPAR COMPANY, Executive Office, 19101 Newport Ave., Santa Ana, Calif. The most points for a single fish wins. The contest is limited to the continental limits of the United States and runs from May 1 to July 30, 1961. Your entry must be postmarked between these dates. In case of a tie in points, the entry with the earliest postmark wins.

YELLOWTAIL 12 points per lb.		SHEEPSHEAD 20 points per lb.	
WHITE SEA BASS (or Striper) 7 points per lb.		BARRACUDA 20 points per lb.	
GIANT SEA BASS (or Grouper, Jewfish) 1 point per lb.		CARP 30 points per lb.	
BONITO (or Mackerel, Tuna) 20 points per lb.		LING COD 8 points per lb.	
SNAPPER 8 points per lb.		TAUOG (or Blackfish) 30 points per lb.	

GLASSPAR ENTRY BLANK

ENTRY MUST BE SIGNED BY EITHER A GLASSPAR DEALER
OR A SPECIALTY DIVE SHOP OPERATOR.

NAME.....

ADDRESS.....

CITY..... STATE.....

GLASSPAR DEALER.....

DIVE SHOP OWNER.....

FISH WEIGHT & SPECIES.....



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Style 200

PARKWAY *fabricators*

348 Bordentown Avenue
South Amboy, New Jersey



OLNEY'S OVERSEAS OBSERVATIONS

Points of interest noted in foreign diving and fishing publications by Ross K. Olney, Associate Editor.

Air fares are the major expense to Tahiti, the jumping off place for the atolls, Samoa or the Marquesas. Round trip from California is about \$700. South Pacific Airlines use the landing strip on a lagoon at Tahiti and will be flying jets soon. Hotels run from five dollars a day after arrival and diving equipment, both rental and sale, is very reasonable. The best diving, according to reports, is at the black sand beach off the Hotel Royal Tahitienne, though heavy shoes are recommended when in the water because of the extremely poisonous stone fish. (*Around the World with Delaplane*)

An attacking shark puts itself in its own most vulnerable position. The perfect, killing shot seems to be into the apex of an imaginary equilateral triangle of which the eyes form the two base points. (*Spearfishing Spotlight*)

While diving off the Queensland coast of Australia, a Mr. Donald Smith found what he believes to be the wreck of the Frigate H.M.S. Pandora which sank 170 years ago while carrying mutineers from the Bounty. Fourteen of the mutineers were being brought home in the Pandora in 1791 when she went down carrying four of them with her when the ship's officers refused to remove their manacles. (*London Diver*)

It happened at a London reception for the Rugby Boks. A charming young thing was trying desperately to carry on a conversation with a big Vrystaat forward only receiving intermittent "Ja" or "Nees" to her attempts.

"Do you read?" she ventured.

"Ja" he grumbled.

Hoping to have broken the ice, she added "Have you read Moby Dick?"

"Nee. I dant read sexy novels," was the deep voiced reply.

"But its not about sex," she protested, "its all about whales."

"I don't like those dirty little men either," said he. (*Duc Dives*)

In England a Conger Eel found stranded at Mill Beach (Essex) weighed more than 80 pounds. Another taken near Herne Bay was found to weigh 80 pounds and was seven feet long and two feet around the girth. (*London Diver*)

Remember to keep your mouth shut when snorkeling. You think that's unneeded advice? Well how about the report from Australia where a snorkeler inhaled a wasp which stung him in the throat and after a painful episode a doctor eventually saved him from choking. As we have more insects here (South Africa) than in Australia, it may be good advice to blow out your snorkel before going into a dive. Imagine the thrill of a big scorpion early in the morning after a heavy night. (*Duc Dives*)

Mammals have always been the most successful and adaptable of living things and the family Cetaceans, although they have lungs and therefore surface to breathe, have flourished in the sea. Dolphins, for example, can in exceptional cases hold their breath for as long as six minutes, but they drown very quickly if this period is exceeded. (*London Diver*)

The Vital Devices Used by U. S. Armed Forces for **SURVIVAL** and **PROTECTION** ...

Now in new packets for skin diver weight belts!

Presto

SHARK CHASERS*

for protection against shark attack

DYE MARKERS

to quickly spot you by search parties



The two survival-and-protection developments used by our sea-borne and air-borne forces are now specially designed packets to slip onto your weight belt. And the price is modest to encourage you to always carry this added insurance for your protection and survival.

PRESTO SHARK CHASER* Exclusive, patented formula, exudes an odor-dye that drives away sharks. Price \$3.95 each.

PRESTO DYE MARKER spreads a long lasting, fluorescent slick on oceans, sounds, bays, harbors and lakes. Facilitates spotting by rescue surface vessels and aircraft. Price \$2.50 each.



*Patented

SPECIAL SURVIVAL-and-PROTECTION KIT

Contains the recommended 2 Shark Chasers and 1 Dye Marker you should have on your weight belt. Each packet is equipped with back straps for simply sliding onto your belt. Complete \$9.95.

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YOUR CHOICE 1/4 in. or 3/16 in.

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Stock Clearance SALE!
WET SUIT KITS \$19.95
Same High Quality!
1/8 in. ready to glue... \$19.95
3/16 in. ready to glue... 24.95
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the World Over.**

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Diver's Den 2123 No. 30th
Tacoma, Wash.

Send complete measurements.

Neck..... Height.....
Chest..... Weight.....
Waist..... Hat Size.....
Hips..... Shoe Size.....

3/16 inch..... 1/4 inch.....

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DIVERS

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SKIN DIVER—July 1961

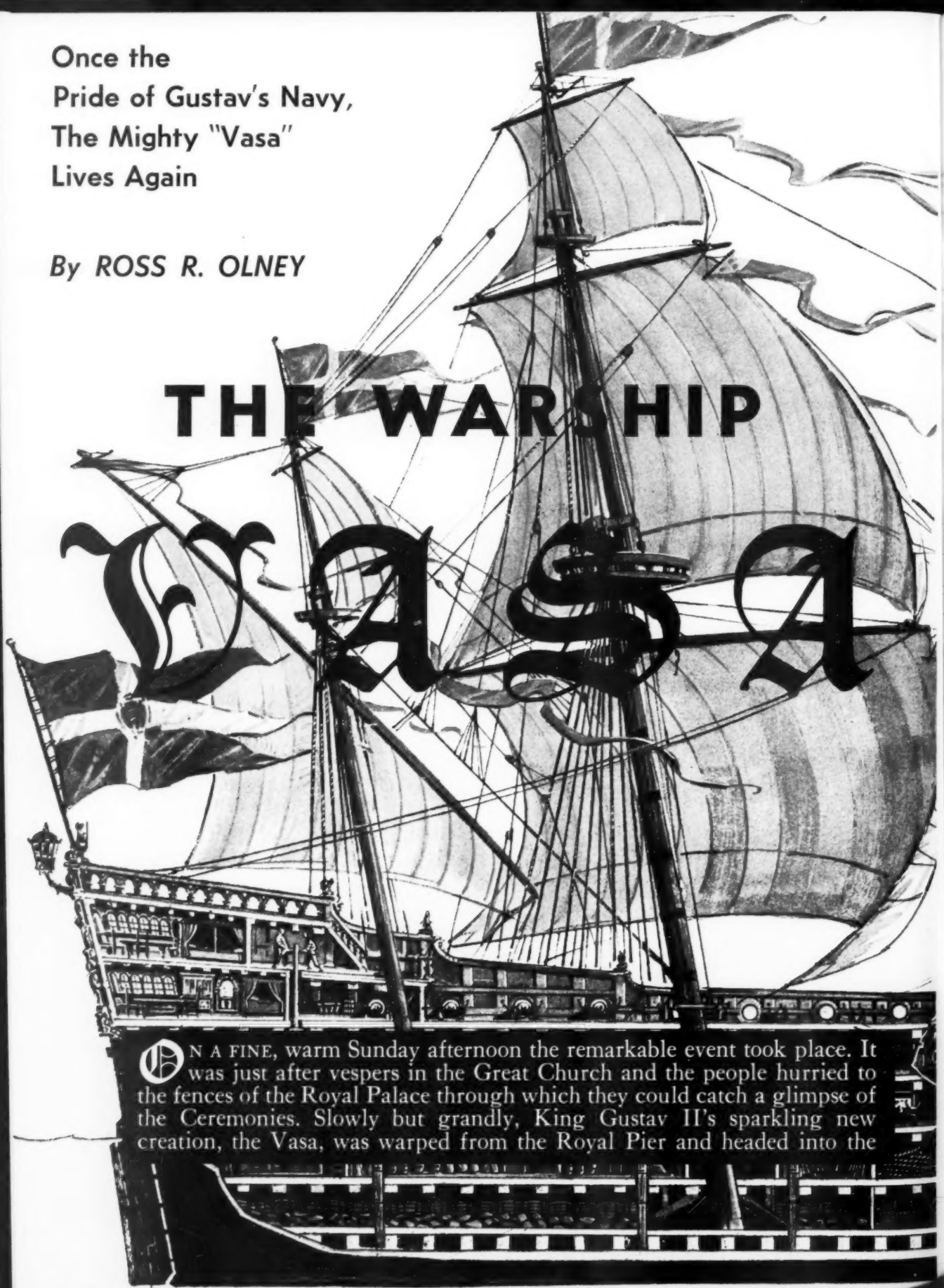
SANTA ANA CALIFORNIA

Once the
Pride of Gustav's Navy,
The Mighty "Vasa"
Lives Again

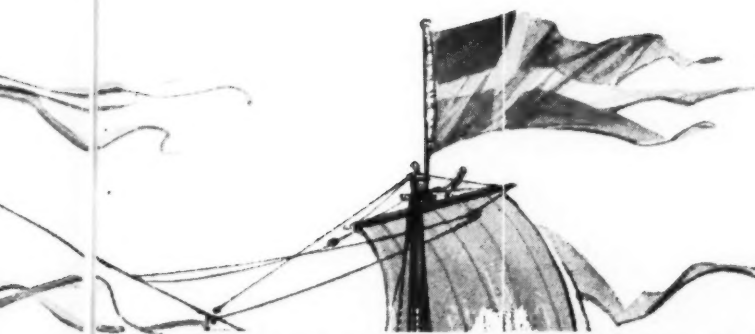
By ROSS R. OLNEY

THE WARSHIP

Vasa



IN A FINE, warm Sunday afternoon the remarkable event took place. It was just after vespers in the Great Church and the people hurried to the fences of the Royal Palace through which they could catch a glimpse of the Ceremonies. Slowly but grandly, King Gustav II's sparkling new creation, the Vasa, was warped from the Royal Pier and headed into the



harbor under a gentle breeze. Safely she glided past the rocks of Södermalm into a freshening breeze, this largest and newest warship in the powerful Swedish Navy. From stern to stern she was 180 feet long, a fitting new flagship for a fighting Navy.

She was built to counteract the German Emperor's plans to invade the Baltic, and from the looks of her stacked rows of gunports, 64 in all, she would be a formidable foe. Bands sounded across the water, competing with each other for notice on this historic occasion, and colorful flags and banners fluttered from the Vasa's masts and lines. But tragedy was only moments away.

Just 110 yards south of Beckholmen in the harbor of Stockholm the breeze strengthened . . . the Vasa heeled over slightly. Immediately sailors rushed to move 80 tons of cannons to windward, to counteract the list.

Unfortunately, in one of the fantastic events of Naval

history, they were seconds too late. In clear sight of thousands of people of Stockholm and with flags, banners and sails whipping proudly in the wind, the mighty Vasa plunged 110 feet to the bottom. The date . . . August 10, 1628.

Poor handling . . . lower cannon ports open . . . faulty design . . . many reasons were given for the tragic loss, but the fact remained that the Vasa's life had been dramatically short. And so she lay, almost undisturbed, for the next 333 years.

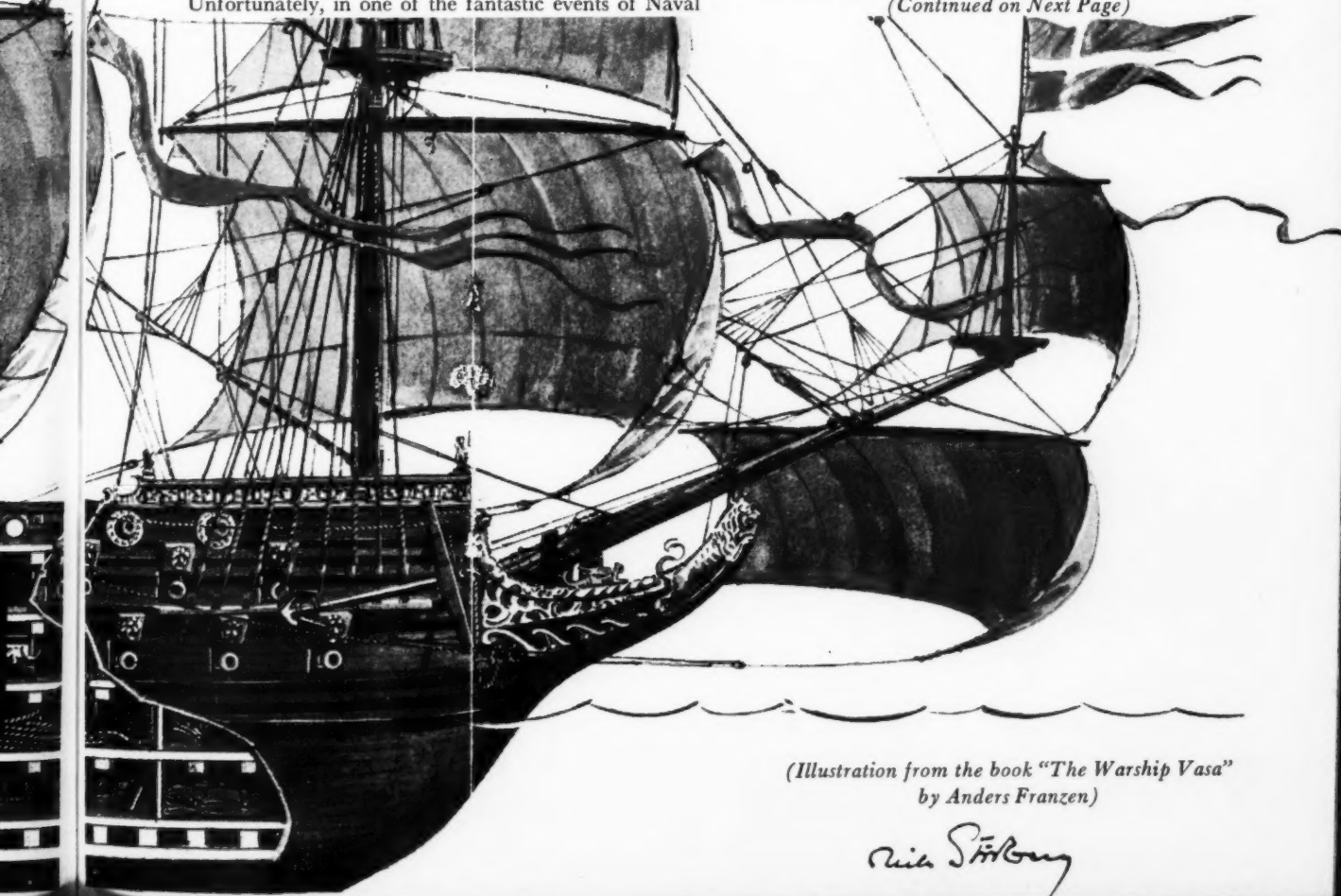
There were salvage attempts, of course. One only three days after the disaster when Englishman Ian Bulmer, "engineer to His Majesty, The King," was able to at least put the Vasa on an even keel. Then in 1629 the Royal Swedish Navy commenced operations to once again float the mighty warship. All attempts to raise her, however, failed.

In 1658 Swedish Lieutenant Colonel Hans Albrekt von Treileben tried and in 1663 a German, Andreas Peckell. Finally the latter two formed a partnership and were able to bring up 53 valuable bronze cannons from the Vasa after tearing off some of her decking. As late as 1683 another cannon was recovered, and then the famed Vasa faded into the pages of history and out of the mind of man.

And so she rested in the cold waters of Stockholm's harbor for centuries, forgotten by man but still preserved by the sterile water, untouched by wars, marine life or the sea itself. Loaded with provisions for a crew of 400 fighting men, sitting upright with sails unfurled and banners moving in the surge, poised on the clay bottom, the Vasa waited.

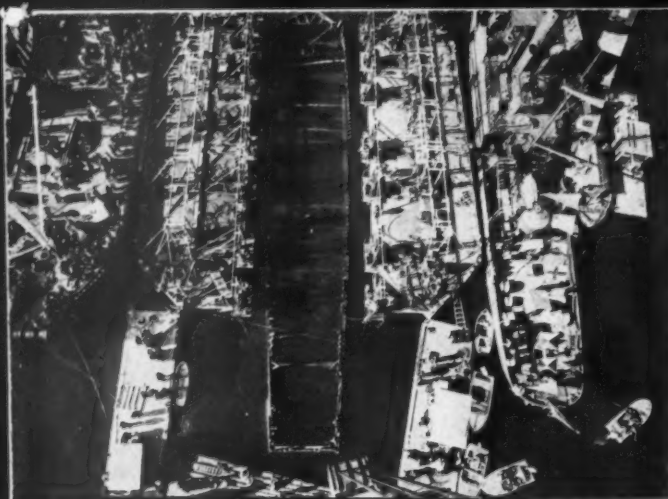
Time, however, ravages all things. Bit by bit, piece by piece, her ornate wood sculptures and finally her masts were torn loose by current or tide or the anchor of some unknowing modern steamer floating far above. Her sails

(Continued on Next Page)



(Illustration from the book "The Warship Vasa" by Anders Franzen)

Anders Franzen



With the final lifting operation, the Vasa's top decks break the surface. Flanked by the barges Frigg and Oden, and other support vessels, aerial photo shows ship at surface for the first time in centuries. (Photo by Pressens Bild Ab).



The first men on the rails of the famed ship in 333 years were Chief Diver Edvin Falting (left) and discoverer Anders Franzen, the victory smile plain on his face. Note carved heads still well preserved. (Photo by Pressens Bild Ab).

At the start of her last voyage, the Vasa is gently nudged and winched toward the nearby shore she left centuries ago. There she will be preserved, refitted with her ornate wood carvings and used as a marine museum. (Photo by Bror Karlsson).



THE VASA

(Continued from Last Page)

rotted and her banners drifted away. The once-proud Vasa, now no longer in fighting trim, still waited.

But time also improves salvage and diving techniques. And it brings new men with new dreams. Swedish Marine Archaeologist Anders Franzen, in 1954, began a systematic search for the position of the ill-fated Vasa, long since lost in the dusty pages of the early salvors records. And, with modern equipment, he found her!

The Swedish Navy, as a training project for their young divers, accepted the challenge that had been offered so many years before . . . to raise the Vasa.

Using modern scuba and hard hat equipment, they began the job of tunneling under the resting warship. Her hull shuddered above the courageous divers, as if beginning to come alive once more. She started to give up more of her treasures, buried for centuries in the clay around her hull where they had fallen.

The tunnels had to be cut in six different places beneath the huge hull, the locations predetermined by accurate drawings. At this point the hard-hat diver was utilized. Working with a water jet in complete darkness, the divers knew that only inches over their heads, on the other side of the bottom of the Vasa, was hundreds of tons of ballast which could crash through any weak plank. And in the case of tunnel cave-in, the diver was completely alone without outside help.

Finally cables were secured to the barge Oden, down and through the tunnels under the Vasa and back up 110 feet to the barge Frigg. Foot by foot they lifted her, moved her in to shallower water and lowered her to take a new bite on the cables. No one had been sure if the 100,000 cubic feet of untouched 17th century would be able to stand the stresses, but she did . . . anxious, perhaps, to once again see the sunshine at the surface. Time after time, under the skillful supervision of Captain Axel Hedberg, the Vasa was inched forward toward the shore. Divers hovered around her constantly . . . watching, checking, helping . . . perhaps praying. The proud ship, whose life had been so short, had caught the fancy of the world.

April 25, 1961, was the day sea-faring men had dreamed of for over three hundred years. The Vasa's top decks were awash. She was at the surface!

Divers, both with helmet and scuba, were the most important one unit on the whole Vasa project. As a training project for the Swedish Navy, the Vasa operation raised standards considerably and created new techniques and devices which will continue to be used in more standard operations. Once again, divers were called upon. Caulking, sealing gun ports and other openings that time had caused, was their continuing hazardous job in the murky waters of her holds. But the job was accomplished and the final pumping began. Now, perhaps, the Vasa would float again.

And she did float! After centuries on the bottom of the sea, the huge warship was gently nudged, pushed and pulled to start her final voyage back to the shore she had never been out of sight of, back to where she had been built hundreds of years before.

There she will be refitted and her amazing wood sculptures will be re-attached in their original positions. Plans for her future from that point are still uncertain. There seems little doubt that she will become a marine museum, a perfectly preserved bit of the seventeenth century for twentieth century visitors to marvel at. One thing, perhaps, can be hoped for when the planners determine the future of this famous ship.

That she, at long last, be allowed to float on her own keel for the years to come . . . a thing for centuries denied her.

DIVING AND YOUR BODY

By WINTHROP H. WARE

Who has not enjoyed the experience of strapping on a fresh tank of compressed air, clamping his face mask firmly against his face and rolling off into cool green water? And, as one swims toward the bottom, the gradual build up of pressure in the ears indicates even before it can be read on the depth gauge, that depth is being attained. With the constant supply of fresh clean air supplied to our lungs, we do not worry as we pass startled fish, and invade an environment strange and foreign to our normal physical state. The mystery of this experience can hardly be appreciated by those uninstructed in the physiology of the human body. While it would be the height of presumption to imply that a mere magazine article could make one an expert in this subject, perhaps you will find this helpful in explaining what actually transpired within your body when you took your last dive.

In the first place, you had your tank filled with compressed air. We humans have been breathing air for generations, and we are used to its composition. The chemist tells us that it is composed of 20% oxygen, 79% nitrogen and about 0.04% carbon dioxide. At sea level, air of this consistency composes one atmosphere of pressure, measured scientifically as 760 mm of mercury (about 30 inches). If we were to divide the atmosphere into its component parts we would say that oxygen exerts a pressure of 20% of 760 mm Hg, or 152 mm Hg. As we breathe this oxygen, however, the moisture in the lung at our body temperature of about 37 degrees centigrade subtracts 47 mm Hg from the 152 mm Hg of oxygen and we are left with only 107 mm Hg partial pressure of oxygen at the point of transfer in the lung. This is really no handicap, however, as venous blood which has been once through the body and has most of the oxygen removed from it contains only 40 mm Hg partial pressure of oxygen. You can see that oxygen from the air can flow into the blood due to the 67 mm Hg differential in partial pressures.

Of course, this is only half the picture, as the metabolic processes of body use up oxygen and produce carbon dioxide as a waste product. This carbon dioxide must also be eliminated, or the cycle will not function. Air in the lung contains 0.04% CO₂ which

means a partial pressure of 36 mm Hg. Venous blood contains about 46 mm Hg partial pressure of carbon dioxide, which leaves a partial pressure difference of only 10 mm Hg. This small difference of amount is quite adequate, however, as CO₂ moves more easily back and forth than oxygen. (It is carried primarily by the plasma as carbonic acid).

Carbon dioxide is normally not too important to the diver, except in its elimination. Equipment that allows excessive dead space for breathing in and out may accumulate a high percentage of CO₂ which the diver breaths over and over again. Located in the carotid sinus is a small organ which the body uses to chemically sense the excess buildup of CO₂ in the blood. When this builds up too highly, the respiratory centers in the brain stem are signaled, and the person begins to breathe deeper and more often. A diver who practices "skip breathing" may accumulate far more CO₂ in his system than can be tolerated, and by training can overcome his CO₂ safety reflex. The result has been unconsciousness, and death.

The manner in which the oxygen is transported by the blood still remains to some extent a mystery of chemistry and physics. Hemoglobin, a remarkably complex molecule, contains reduced iron which is able to form a chemophysical bond with oxygen. Each molecule of hemoglobin grabs a molecule of oxygen and carries it off in the blood stream to muscle, brain or other tissue where it is needed for a metabolic process. Each minute the resting heart pumps about five liters of blood throughout the body, which happens to be about the volume of blood we contain. Under stress of exercise, such as swimming, we speed up this flow several times. Imagine how quickly the release of any poison, or the failure of a metabolic process can be felt by the body with the blood exchanging at this velocity!

Most all divers know that for every 33 feet of water depth another atmosphere of pressure is added. Thus at 33 feet, the pressure is 2 x 760 mm Hg, or 1520 mm Hg. Of course, this raises the partial pressure of oxygen in the lungs as well. It is about 259 mm Hg at 33 feet, and rapidly builds up as one descends. At 200 feet of depth, the lungs are under seven atmospheres

of pressure, which means a partial pressure of oxygen of 1019 mm of mercury. This is getting pretty close to the maximum pressure however, for while the hemoglobin can carry oxygen at this pressure, and exchange it in the tissues for CO₂, at a partial pressure of from 1200 to 1500 mm Hg the nature of the chemical bond changes, and oxygen is no longer released from the hemoglobin at the tissue sites in need of it. At this point, oxygen is no longer available for metabolism, and the diver suffers anoxia, just as if he were cut off from oxygen completely. Under these circumstances, it seems a bit foolish for divers to attempt depth records at over 250 feet, for the record cannot be a result of skill or ability as much as just plain luck. This will also explain why war-time rebreathers are dangerous. These use pure oxygen instead of a gas mixture, so you can have at two atmospheres pressure (33 feet) an oxygen partial pressure of about 1473 mm Hg. Reason would dictate this to be the absolute maximum depth for this type of equipment.

There is one component of air that we have not yet discussed, and that is nitrogen. Nitrogen is an inert gas, physiologically speaking, at normal pressures, but as pressure increases over seven atmospheres (200 feet) the nitrogen in the air mixture begins to effect nervous tissues. Its basic effect is most noticeable on the ganglia of the central nervous system, and can cause coma. There is evidence of a wide variation in reaction to this "nitrogen narcosis," but a wise diver should consider coma the most likely possibility, and not take chances with his life. If you are bound and determined to investigate the Andria Doria at 225 feet, it would be best to obtain a diving mixture which substitutes helium for nitrogen. Helium has a smaller molecule than nitrogen (molecular weights show this difference, helium is 4, while nitrogen is 28), this means that helium can diffuse faster (by 2½ times) through the tissues, and about 1/3 less is absorbed into body fluids. But even with the oxygen, helium mixture, as mentioned above, a diver is still limited by oxygen itself to about 260 feet.


Divers have all heard about the bends or caisson disease, but unless you are using double tanks or diving all

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SDM STAFF FEATURE . . .

HOLLYWOOD UNDERWATER

UNDERWA



ONCE in a while a motion picture is made which has a universal appeal to divers. A motion picture in which they can sit back and relax, forgetting minor technical errors, to enjoy a colorful underwater adventure. Columbia Studios has apparently succeeded in making such a picture.

Technically, the picture is almost as interesting to divers as actually living through the experiences of the players. For this picture was shot almost entirely on a warm, dry sound stage and SDM felt one of our own reporters should be present to see how this was accomplished.

Jack Nicholas, of Columbia's publicity department, handled the arrangements.

He was enthusiastic. "Wait till you see the set . . . you'll be amazed," he promised.

Sure . . . amazed. Nothing could compare to the reality of the bottom of the ocean. No sound stage, no artificial "Hollywood" layout.

However, the scientific overtones of the picture did interest us. Here is a story of a group of scientists, and the ever-present pretty girl, who have decided that it is possible to build and live in a city completely submerged in the ocean. The "Underwater City," starring lovely Julie Adams and William Lundigan, is the story of this attempt. From the first surveying of the chosen area to the final

cataclysmic destruction of some of the "cells" by an underwater earthquake, the picture remains within scientific possibility.

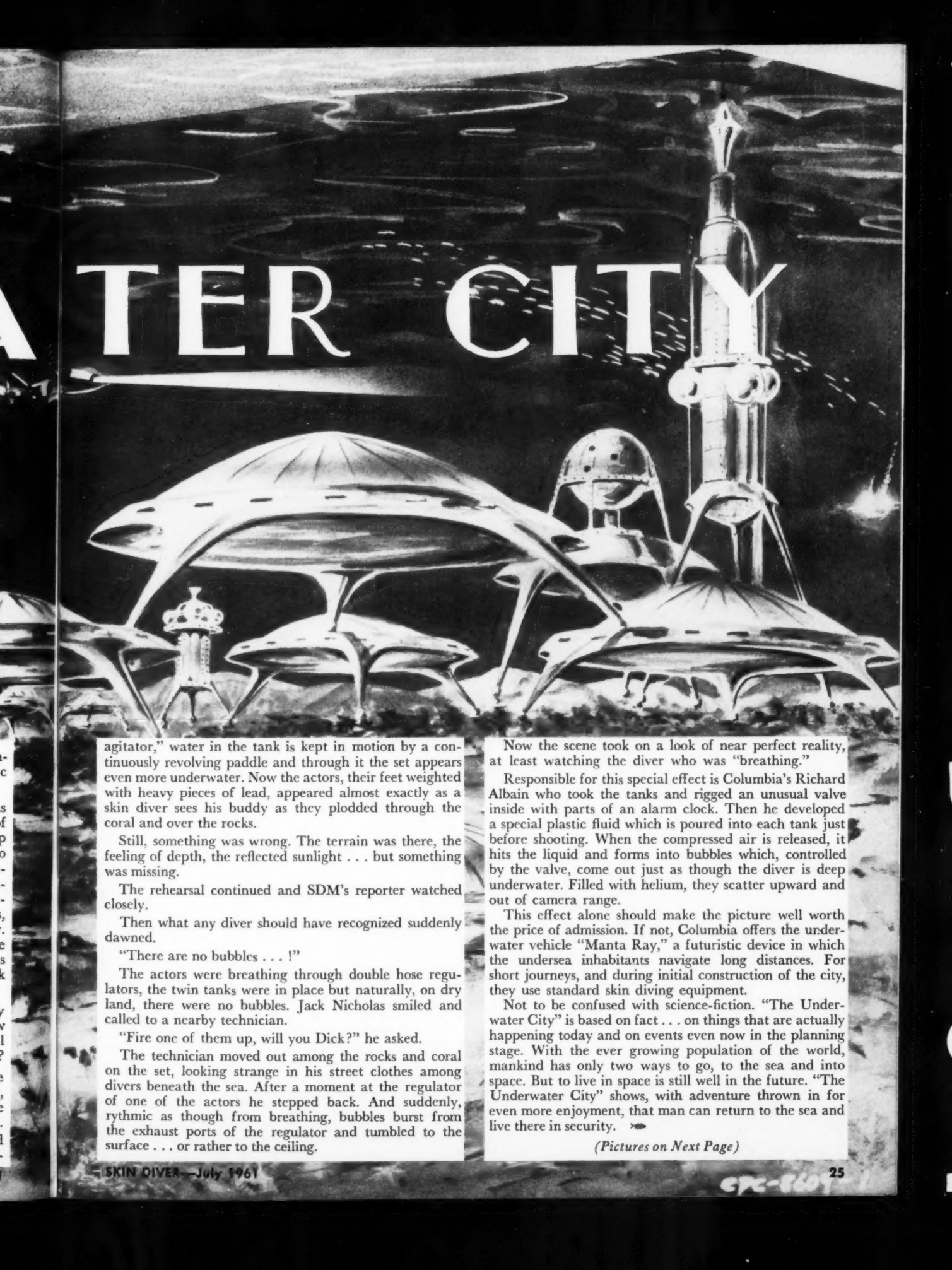
Probably the most striking part of the assignment was first entering the sound stage. Filling one whole side of the huge building was the ocean floor. Rocks, coral, kelp and undersea plants made one want to reach around to open the "J" valve, to grip the mouthpiece tighter. Behind this area was a high, circular blue wall which succeeded in duplicating the mists of the ocean beyond normal visibility. Suspended far overhead were tinfoil flats, each with a light playing on it and each rolling slightly. The whole set appeared bathed in reflected rays of the sun, a sight very familiar to divers. Actors in wet suits and twin 38's moved slowly, methodically across the rock strewn floor.

Pretty good, but after the initial shock of the reality of the whole thing, other questions began to form. How could they, for example, make it appear to a critical technicolor camera that they were actually underwater?

Jack Nicholas indicated a black shrouded booth on the set, toward which the actors were obviously playing. In it, Director Frank McDonald checked the progress of the rehearsal. And in it was the second surprise of the visit.

The front wall of the booth was a huge, water filled tank through which the camera shot. Tagged the "aqua-

WATER CITY



agitator," water in the tank is kept in motion by a continuously revolving paddle and through it the set appears even more underwater. Now the actors, their feet weighted with heavy pieces of lead, appeared almost exactly as a skin diver sees his buddy as they plodded through the coral and over the rocks.

Still, something was wrong. The terrain was there, the feeling of depth, the reflected sunlight . . . but something was missing.

The rehearsal continued and SDM's reporter watched closely.

Then what any diver should have recognized suddenly dawned.

"There are no bubbles . . . !"

The actors were breathing through double hose regulators, the twin tanks were in place but naturally, on dry land, there were no bubbles. Jack Nicholas smiled and called to a nearby technician.

"Fire one of them up, will you Dick?" he asked.

The technician moved out among the rocks and coral on the set, looking strange in his street clothes among divers beneath the sea. After a moment at the regulator of one of the actors he stepped back. And suddenly, rhythmic as though from breathing, bubbles burst from the exhaust ports of the regulator and tumbled to the surface . . . or rather to the ceiling.

Now the scene took on a look of near perfect reality, at least watching the diver who was "breathing."

Responsible for this special effect is Columbia's Richard Albain who took the tanks and rigged an unusual valve inside with parts of an alarm clock. Then he developed a special plastic fluid which is poured into each tank just before shooting. When the compressed air is released, it hits the liquid and forms into bubbles which, controlled by the valve, come out just as though the diver is deep underwater. Filled with helium, they scatter upward and out of camera range.

This effect alone should make the picture well worth the price of admission. If not, Columbia offers the underwater vehicle "Manta Ray," a futuristic device in which the undersea inhabitants navigate long distances. For short journeys, and during initial construction of the city, they use standard skin diving equipment.

Not to be confused with science-fiction. "The Underwater City" is based on fact . . . on things that are actually happening today and on events even now in the planning stage. With the ever growing population of the world, mankind has only two ways to go, to the sea and into space. But to live in space is still well in the future. "The Underwater City" shows, with adventure thrown in for even more enjoyment, that man can return to the sea and live there in security. ➤

(Pictures on Next Page)

UNDERWATER CITY *(Continued from last page)*



Leaving the underwater vehicle "Manta Ray" to check the site of the new city, William Lundigan leads group in Alex Gordon's production of the near future.



Chief Engineer Lundigan directs initial construction of the new city as other project experts look on. Picture to be released by Columbia was shot on dry stage.

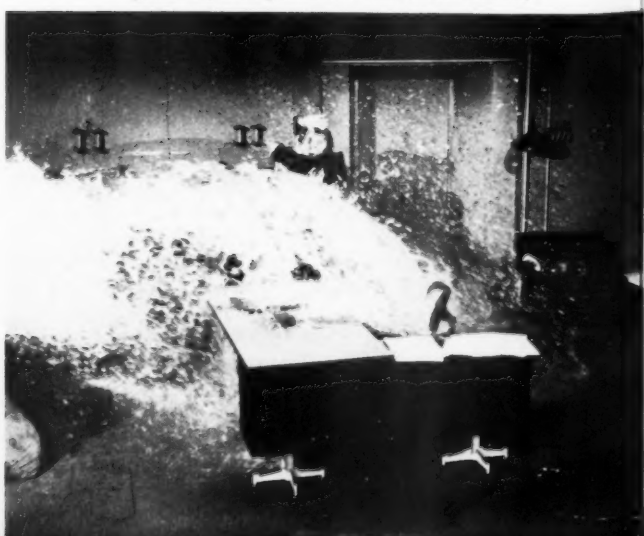


Lundigan and Chet Douglas approach ladder to the living deck of their cell in "The Underwater City." Sunlight creating flares can be seen at top of photo.



Trouble in Underwater City. Pretty Julie Adams gets trapped in rock fall but assistance is at hand. For more realism and enjoyment, picture was shot in color.

William Lundigan shows off the completed cell unit of the first underwater city to (l-r) Paul Dubov, Chet Douglas, Julie Adams, Kathie Browne and Ed Mallory.



OCEANOGRAPHY

By ROSS R. OLNEY

[Sixth of a series on the importance of
oceanography in the next ten years]

Research Ships

WITHOUT instrumented ships and qualified crews, our oceanography research programs would quickly come to a halt. These floating laboratories transport scientists to the point of study where, on station, they can conduct their experiments under ideal conditions. Providing, of course, the ships are designed and equipped for such experiments.

What does the ideal research ship consist of? First, to be an oceanographic research "ship," the vessel should be of at least 300 tons displacement. Anything smaller, though still quite useful and necessary, is not nearly as great a problem regarding both availability and cost. Some form of roll and pitch stabilization is necessary on the ship plus high maneuverability at very slow speeds. The ship should radiate a minimum amount of noise into the water so that it doesn't interfere with the delicate instruments aboard or towed. Machinery vibration must be damped and the ship should be highly seaworthy to withstand long trips through foul weather.

Large laboratory spaces, ample deck working space and the ability to remain at sea for extended periods with a relatively large number of people must be designed into the ship. Incidentally, approximately one half of this group of people, the scientists and technicians, should be living in an atmosphere favorable for research . . . quiet, air conditioning, pleasant surroundings, etc.

The useful mechanical life of a research ship is about 30 years. Designed into this 30 year life must be hull and power characteristics which, even now, need far more study. For example, in order to maintain zero forward speed and at the same time alter the heading of the ship, some form of bow propulsion is required. Exact forward speed between zero and three knots is necessary for some types of marine research. A space near the center of motion of the ship must be built in to accommodate instruments measuring gravity and others requiring a stabilized platform.

High latitude capabilities should be built into practically all new oceanographic ships, but they must also be comfortable in the tropics. And then provision should be made for a large battery capacity or a well-isolated generator with sufficient energy to run the ship for long periods on station in complete silence. Sound is rapidly becoming one of the most important tools in oceanographic research and the great advantages of a silent ship, both on station and under way, become obvious.

A shielded space for quantities of radioactive materials will be necessary. Also, if marine biology is to be conducted, space must be set aside for aquaria having temperature control and a steady supply of pure sea water. A complete "wet" laboratory is desired.

In a relatively familiar field, that of winches, little design experience has been accumulated. Still, on oceanographic research vessels there must be winches capable of handling long cables in all types of weather. Of increasing importance to our scientists are tools such as towed sensing devices, sounding instruments and deep water photography, all handled by winches aboard the ship.

Actually, biological oceanography has suffered severely from lack of help from an adequate engineering facility. The counterpart of an agricultural experiment station has been almost com-

pletely missing in marine resources research and development. Suppose one engineer designed the perfect regulator, another the perfect air tank, yet not in cooperation with each other. Though both would be prime examples of engineering skill, they would probably not serve their intended purpose since they must work together to work at all. The same holds true for ship and instrument design. One must be built to work well with the other.

Though finances for these programs will not be discussed here, it must be remembered that operating costs, even after the initial building expense, have risen very rapidly. For example, during the pre-World War II period the auxiliary ketch "Atlantis" cost an average of \$200 per day to operate at sea. Today her costs are five times that amount while her efficiency in an expanding science has been steadily reduced.

So what are the general recommendations? First, a national plan must be put into effect to replace, modernize and enlarge the present number of oceanographic vessels. Most ships now being used are at least 15 years old and some of them have been in service for 30 years. National prestige in an advancing science demands that we meet this challenge. Briefly, the following suggestions are advanced. Scientific ships should be exempt from regulations that are practical and sensible only for large merchant ships. Cabin size regulations, lifeboat necessities, crew licenses, etc., should be adjusted to the purpose of the ship.

The development of all-weather ships in three size ranges seems most logical. Smaller ships of 500 tons displacement, actually one of the most difficult to design, for shorter cruises with a smaller scientific party. The next class is the 1,200 ton displacement, capable of handling heavy weights, containing ample laboratory space, able to make extended cruises and with a larger complement of scientists. The largest class, about 2,200 tons displacement, is needed for general oceanographic research in the distant polar seas and other remote areas.

Since it is so important that the loyalty of the crew be to the organization using the ship and that attractive career opportunities be present, oceanographic research vessels should be manned by civilian crews. In fact the Navy might well consider the same system for its research ships.

Finally, conversions should be kept to a minimum. In the long run, it is less expensive to build new, fully equipped research ships rather than to convert older ships no longer of use to our fighting forces.

At present, about twenty new ships are needed during the next ten years to maintain the present fleet size, with several ships already overdue for retirement. This will, with newer developments, mean only a modest increase in oceanographic research and is the bare minimum. If this country is to maintain the standing that it has in world wide oceanographic studies, and this is not perhaps the standing it should have, this program must be carried out. »

Next Month—Engineering Needs for Ocean Exploration.
Reference, Oceanography 1960-1970, National Academy of Sciences.

By ROY MILFORD



Beautiful, crystal clear Southeast Bay of Mayor Island, located twenty miles off North Island, New Zealand.



Author Roy Milford with 41 pound Kingfish taken off Mayor Island. Photo is self portrait with delayed shutter.

Mr. Nobby Clark . . . in this case a Mako Shark. Mayor Island, shark's home, is in area called "Bay of Plenty."



*Spearfishing off
New Zealand is
perfect . . . except
when "Nobby Clark"
pokes in his ugly
snout!!*

**DOWN
UNDER
DOWN
UNDER**

Christmastime is summertime in New Zealand and the eyes of diving enthusiasts turn toward their favorite underwater holiday resorts. In the North Island a warm current, rich in plankton and marine life, flows down the N.E. coast, bringing summer visitors from the tropical Pacific. Black marlin, striped marlin and mako sharks maraud huge schools of trevally and kahawai, often some square miles in extent. The giant ocean sunfish wallows his way south, sometimes showing a massive five foot dorsal fin and local fisherman have even sighted, on two occasions, a very rare visitor, the manta ray.

Mayor Island lies twenty miles offshore in the middle of the game fishing grounds, so Trevor George and I headed out on the launch Rarangi to spend two weeks diving and camping on the small rocky island. The visibility below was from 60 to 80 ft. as we entered the beautiful horseshoe shaped S.E. Bay. In record time we pumped the inflatable tent up, made camp, and ran down to the ever inviting water.

The underwater scene was teeming with life, leather jackets with their stiff bodies and fluttering fins stood on their noses or tails or even swam upside down, inquisitive little electric blue maomao nibbled the tip of our spears, busy cod forked through the sand with the two prongs beneath the chin. Every nook and cranny held a peering black angelfish while red banded moki grazed quietly on the seaweed.

A fleet of squid flew by in formation without appearing to move a muscle, over on the kelp a beautiful deep blue butterflyfish glided by with its long anal and dorsal fins waving behind, below the rocks we saw the searching antennae of crayfish moving to and fro. Colonies of sea urchins with short brown spines clung to the rocks as did clusters of paua, which are the abalone of America. This was truly a happy hunting ground. Trevor had got ahead of me on the swim out, and I heard the metallic rattle of his gun being used, the next moment he was running up my back and yelling "Nobby, Nobby as big as a whale."

Perhaps I ought to explain that in London cockney jargon a shark is a Nobby Clark and for short we just call him Nobby. Trevor had speared a nice fat moki and while screwing his speartip back on, allowed the fish to float on the surface close by. He almost jumped out of his wet-suit when he looked up to see a large shark approaching with its eating apparatus on show. Fortunately it was only interested in the moki and soon disappeared shaking it savagely from side

to side. It was Trevor's first shark and from then on I couldn't have had a closer companion.

Round the point from the bay we found the bigger free swimming fish, streamlined kingfish similar to the Pacific yellowtail and the kahawai, like a large mullet, swam past in schools. Near the bottom flew a big grey black sting ray four or five feet across, its huge wings smoothly beating in unison. Many semi-tropical fish find their way to Mayor Island and are seldom found on the main coast. We noticed several eels glaring from their caves, and a brilliantly colored nudibranch sea slug undulating across a rock. Four hours in the water passed like minutes and we were soon back in camp preparing golden-brown fillets of moki.

Trevor's brother Russell arrived on the island in time for our next dive, so with a float and threading sticks on the end of a long line we set off round the point. My first fish was a beautiful deep bodied "bluefish," electric blue with brilliant golden spots, highly prized by Maori fishermen who call it "King of the Sea." We secured it to the fish float and Russell towed it behind. Not long after he felt a slight tug and looked round to see our friend Nobby Clark neatly swallowing our fish.

At times a lovely delicate, white, paper nautilus shell is washed up on Mayor Island and is greatly valued by collectors.

Exploring a channel against a cliff face, behind a big rock in a deep sandy pool I discovered a nautilus graveyard. Half buried in the sand lay fifteen to twenty exquisite shell cases, a real treasure to behold.

That evening sitting on the beach before a roaring fire we tasted crayfish cooked in the sand and voted it the tastiest of all. After burning a fire on the sand for awhile the fire is brushed aside and the crabs are buried in the hot sand. Half an hour later they are ready for eating, cooked in their natural juices and full of flavor.

Next day we walked across the island through the native bush on an old Maori track. Without any natural enemies the bush is a paradise for birds, the tree's resound with the song of tui's, bell birds, warblers, native pigeon and many others. Emerging at N.W. Bay we were astounded to see a whole school of trevally feeding in the shallow surf right up on the beach with their bodies half out of the water. For the next half hour we had great fun waiting for a wave to bring the trevally up the beach and then racing in at top speed and trying to grab them by hand.

Just a few minutes hunting in N.W.

Bay and the larder was well stocked with a parrotfish, a butterflyfish, and a 20 lb. snapper. The rest of the day was spent exploring the coastline and investigating many deep and interesting caves. One cave had an underwater tunnel through which we swam for ten feet to emerge in yet another cave. Fish were everywhere, standing out boldly in the beautiful reflected silvery light. Later in the afternoon before returning to camp, we lit a driftwood fire and barbecued fish on our spear shafts.

One day a sleek 30 knot speedboat nosed into S.E. Bay. She was painted red and white and flew the Divers Flag to match. It was Peter Spurdle, a diver from Wanganui, suffering from a bad case of kingfish fever. Peter introduced us to "Shoal Jumping," a sport I was inclined to look sideways at for a start.

Around the outside of each big shoal of fish swim the hungry kingfish, and outside of them swim the hungrier marlins and mako sharks. These gentlemen are apt to regard the shoal as their dinner and every once in awhile may decide to wander through at 60 knots with mouths open. Peter was the first to spot them.

"A shoal boys," he yelled. "Let's go!"

Minutes later I was lowering myself over the side into a vast area of churning rippling water among countless thousands of fish, a mixed school of kahawai and trevally. Once in the water I was over awed by the sight of a solid wall of fish opening in front of me, closing behind, relentlessly, soundlessly, urgently moving, surveying me with cold staring eyes. I looked down unto the deep blue bottomless depths and saw fish to the limit of visibility. A million fish passed by.

I neared the fringe of the shoal double rubbers loaded, waiting for the kingies. Suddenly I was clear and six great blue and yellow kingfish were zooming about me. Picking a target I hit a beauty with a gill shot and the fight was on. His five mates stayed with him, as they all raced round together. I was dragged ten feet below the surface.

For the first five minutes it was a struggle to get up for air, but the gill shot soon paid off and I anxiously got him out of the water before the arrival of Mr. Nobby Clark. Back at the game fishing club he tipped the scales at 41 lb., a very tasty morsel.

Last year I spent five months diving around Tahiti and the surrounding islands and came home dreaming of the pass in the reef at Bora Bora. But what has Tahiti got that Mayor Island hasn't?

Unfortunately, there is one thing ... Girls! ➤

News Current

NEWS FROM AROUND THE GLOBE COMPILED AND EDITED IN SKIN DIVER OFFICES. Local diving news from readers welcomed.

NEW YORK, NEW YORK—"Skin divers have had their share of troubles. Surfcasters clobbered them with sinkers and boatmen ran down their floats. Easily influenced town officials have even banned them from their shores . . . but the Long Island Sound oyster industry is welcoming the frogman with open arms." These opening words of New York Daily News columnist Jerry Kenny are also welcome to SDM and its readers in comparison to some of the less enthusiastic response from other members of the fourth estate. Mr. Kenney went on to report that in the past ten years starfish were murder to the oystermen. In one season the little pests ate up 90% of the crop and the oyster industry has been in bad shape for years until the skin divers stepped in. In last year's star mop 10,000 starfish were plucked from Eaton's Neck, Long Island, in a contest conducted by the Long Island Dolphins and more starfish mops are planned this year.

PALATKA, FLORIDA—The Aqua Knights, a diving group that has discovered the remains of prehistoric animals in Putnam County, discovered its first human skull. Bobby Adkins and Johnny Johns made the discovery in an undisclosed spot on the St. Johns River between Rice Creek and Palatka.

VERA CRUZ, MEXICO—A week's diving holiday in Vera Cruz, Mexico, is being planned for the week of July 22 through July 29. Bill Flagg of the Dallas Divers Club will be the guide for the group that will leave on Braniff International Airways jet flight at 11 a.m. July 22. Full details on the trip can be obtained by writing Preston Center Travel Service, 6138 Berkshire Lane, Dallas, Texas.

HONOLULU, HAWAII—Diver-author Gordon Freund was rushed to the Pearl Harbor Submarine Base recompression chamber recently where he spent more than 18 hours. Freund and two friends had been diving in the Waikiki Diamond Head area when he was stricken with the bends. He was on his second dive and had been to the 100 foot depth for 20 minutes when he was forced to make an emergency ascent. His prior dive had been to 80 feet for 15 minutes. Immediately after the fast trip up from 100 feet he began to complain of abdominal pains which spread to his legs. Then he began to have difficulty breathing and became unconscious. In recompression at the submarine base he was taken to a simulated depth of 165 feet for treatment.

SAN FRANCISCO, CALIFORNIA—Another gold diving brochure has been added to the growing list of literature and equipment available to the relatively new facet of the sport that is gaining impetus. The free brochure, entitled "Skin Diving for Gold in California" is available from the Mineral Information Department, State of California, Division of Mines, Ferry Building, San Francisco 11, Calif.

SAN DIEGO, CALIFORNIA—Members of the Astro Divers are recovering ancient Indian artifacts off the Southern California coast for Scripps Institution of Oceanography's archaeologist James Moriarty. The club has recovered over three thousand mortars (bowls) off La Jolla Beach and Tennis Club. The mortars date back four to seven thousand years ago.

CATALINA, CALIFORNIA—While exploring off the east side of Catalina with the charter boat, Deep Six, Carlton Koehler and other divers of Underwater Services Company discovered an engine from an airplane complete with propeller. The engine had been submerged for some time and the divers plan to raise it for identification. They said the plane apparently exploded on contact as only small scattered pieces of wreckage were found.

PENN YAN, NEW YORK—Police found a 1951 convertible parked on the frozen surface of Keuka Lake and hauled it off shortly before the spring thaw started. Divers in the area will have to look for a new exploration site now as they had deliberately taken the car onto the ice covered lake.

MANILA, PHILIPPINES—A Philippines News Service dispatch has revealed that an American scientist, Professor Horace Palmer, has discovered \$50 million in gold bullion sunk in waters off Bongao Island. Palmer located the gold cache off the Southern Philippine island in a Japanese ship sunk by American planes during World War II. Prof. Palmer was a member of the marine survey expedition which went to the Sulu Sea in February to collect specimens and make underwater observations, but was dismissed when he insisted that the group combine its scientific studies with treasure hunting.

WILMINGTON, NEW YORK—Jon Twichell submerged into the cold waters of the Ausable River to assist in removing old and rotting timbers from the site of a new gate to be installed at the Wilmington dam. Twichell remained in the water attaching chains and hooks to the beams while hoists on shore were busy pulling the refuge out.

MONTEREY, CALIFORNIA—The Seven Seas diving shop of San Mateo has opened a branch shop on the Monterey Peninsula. Fully equipped to handle all diving needs, the new shop at 623 Lighthouse Ave. is operated by Loren Cristensen and Chris Agorastos.

PHOENIX, ARIZONA—An active group of divers are assisting Phoenix law enforcement agencies in recovery of lost and stolen articles, drowning victims and have helped solve murders by recovery weapons. The original two members of the Maricopa County Sheriff's Divers Posse are Jerry Brown and Bill Hicks. The group now has thirteen divers commissioned as deputies.

WASHINGTON, D. C.—A "boat" that can cruise in the greatest depths of the sea for a minimum distance of one hundred miles at speeds of three to six miles an hour now exists in Navy blueprints. The new boat is an adaptation of the familiar bathyscaph only the new depth vessel will be capable of forward motivation.

WOOSTER, OHIO—A project south of Mt. Eaton will provide the year-old Wooster Skin Divers Club a home and at the same time give soil conservation in the area a boost. The club has purchased a dormant mine area of 15 acres and plan to turn the old mine into a recreation area. They will plant five thousand trees and stock the lake with fish. The U. S. Soil Conservation Service is providing a plan for developing the land.

STURGIS, MICHIGAN—Members of the Snorkelers Diving Club aided the sheriff's department of St. Joseph County and the Sturgis and Colony rescue squads in the recovery of three teenage boys who were fishing from a boat at Quail Lake. A fourth boy managed to swim to safety. Three divers, Maurice Kirkpatrick, James Tolsma and Robert Trayling entered the water at 11 p.m. and discovered two of the victims. The third had been recovered earlier by dragging. The divers were hampered in their midnight search in that they were waist deep in the lake's fine silty bottom.

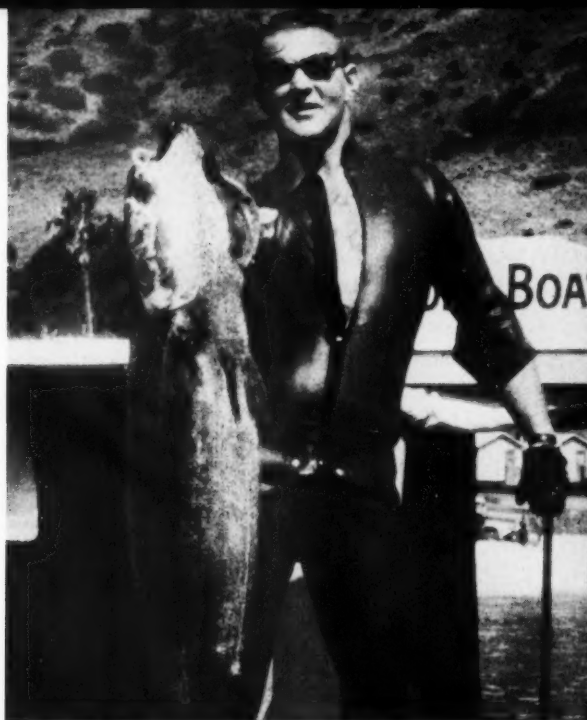
HOLDEN, MASSACHUSETTS—Neil Janssens, John Jaillet and Walter Walet assisted rescue workers in the recovery of the maimed bodies of a small plane crash into a dense swamp. Access to the area created by the rescue workers carried heavy earth moving equipment to bring up the part of the plane containing the decapitated bodies from ten feet of mud. The divers, all members of the Gardner Aqua Pros, worked several days searching and helping attach cables to the plane.

NEW YORK—Looking for a tropical dream island where you can dive in a crystal clear lagoon, hunt for underwater pirate treasure and only 800 miles from Miami? Then set up your vacation plans to join a special 17-day tour to San Andreas in the Caribbean. The tour leaves Miami on Saturday, August 19 and

(Continued on Page 62)



Internationally known diver, Gustav Dalla Valle



United States Team Coach, Jim Christiansen

U.S. Team to be aided by ...

SEMINAR LECTURES

DIVERS . . . Spearfishermen . . . How many times have you thought how handy it would be to corner the top spearfishermen in the world, to talk to them, to learn the secrets and tricks of their championship ways?

Now, thanks to internationally known diver Gustav Dalla Valle and U.S. Team Coach Jim Christiansen, this is going to be possible for many of you. And at the same time you will be sponsoring the U.S. Team to the World Championships in Spain. So if you live, or are able to travel to, Houston, Texas; Miami, Florida; Hartford and New Haven, Connecticut; Los Angeles, Calif., or New York City, take heed. At these locations will be conducted the Seminar Lectures on diving and spearfishing. Proceeds from ticket sales to these meetings will go directly toward financing the U. S. Spearfishing Team to Europe.

Here's how it will work. Mr. Dalla Valle and Mr. Christiansen, along with diving experts and team members, will convene before you and other interested divers for motion pictures and an open panel discussion. You will be able to fire questions, solve problems, discuss techniques with the best divers and spearfishermen in the world. A diving doctor will be present at each seminar to answer medical questions.

Each lecture by an expert will be accompanied by a new and very interesting film, never before projected in this country. Also, the "Blue Olympics" film, detailing the 1960 World Championships, will be shown at each seminar. There will films on spearfishing in the Mediterranean Sea and even a film on the particular techniques of diving without breathing apparatus. Between films the seminar panel will conduct an open discussion with the audience invited to participate. At this time any team members present and Coach Christiansen will reveal the secrets that

make American spearfishermen among the best in the world.

Included in the lectures will be a complete review on the best individual divers in the world, a discussion of past and future Championships, and even tricks to make spearfishing easier for the average diver.

And then the darker side of diving will be discussed, the dangers which are not so well known regarding diving without a lung. The very dangers, in fact, which took the lives of several first class divers during the past three years. Jules Corman, 1958 French and World Champion, was one of these victims.

Seminars such as these have been held in Spain, France and Italy with great success because they give the audience a chance to participate, to actually discuss particular problems with top experts. This will be the first time such a gathering will be held in this country.

Expenses of the experts present will be their own responsibility so each ticket buyer knows that his money is going completely to the U.S. Team. The purpose of the seminars is actually two-fold . . . one to raise necessary funds for American Team participation in the World Championships and two, to make a complete analysis of diving and spearfishing before interested spectators. Skin Diver Magazine hopes that divers in each representative city will take advantage of the opportunity to help and learn. Tentative dates have been set as follows and any changes will be well publicized by your local clubs and councils and by Skin Diver Magazine. June 28, Houston; July 3, Miami; July 5, Hartford; July 6, New Haven; July 7, New York. The Los Angeles date will be announced later.

This is every diver's chance to back the best divers and spearfishermen in the world, the U.S. Team.

Junior . . . FIN FANS

by JEAN DOWD

(Would you like a diving Pen Pal? Send in your name, age and address and we'll print it in the Junior Fin Fans column. Write to: Junior Fin Fans Underwater Mailbox, c/o Skin Diver Magazine, Lynwood, California.)

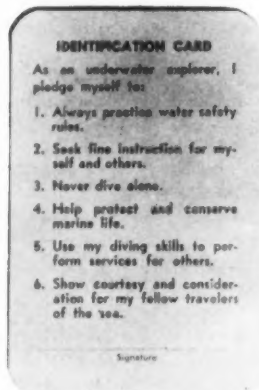
BE A REGISTERED JUNIOR DIVER JOIN THE NEW JUNIOR FIN FANS CLUB

By forming this new club for juniors, Skin Diver Magazine has created a news center for young divers to promote safety, answer questions, provide recognition and exchange ideas.

The membership fee of \$1.00 includes a notebook for your special diving information, the club decal and personal membership card. In return, you must agree to follow the safety rules listed on the back of your card.

Help us make a big splash for juniors everywhere! Join Junior Fin Fans Club today.

Be sure to include: your name, age, address, birthdate and a check or money order for \$1.00.



MEMBERSHIP CARD



CLUB DECAL



CLUB NOTEBOOK

IT'S CONTEST TIME AGAIN

Enter this new, easy contest for Juniors.

PRIZES GALORE

Your entry may win a wet suit, fins, mask and snorkel, books or many other diving products.

ENTER NOW

See list of some of the prizes being offered by leading manufacturers of skin diving equipment at the end of this column.

CONTEST RULES

OPEN TO: any individual, 18 years of age or under.

FOR completing this in 25 additional words or less: "Skin Diver Magazine makes diving more fun for Juniors because. . ."

CLOSES August 20th, postmark.

ADDRESS: JUNIOR FIN FANS CONTEST, SKIN DIVER MAGAZINE, LYNWOOD, CALIF.

JUDGING based on age, sincerity and aptness of thought.

CONTEST PRIZE LIST

The following prizes were donated by manufacturers.

SWIMASTER—2 sets of fins, masks and snorkels, 2 diving instruction books and 2 standard LifeGuards.

HEALTHWAYS—complete skin diving outfit including wet suit, fins, weight belt, mask and snorkel.

SKI 'N DIVE—one complete Farmer John wet suit.

SPORTSWAYS, INC.—6 sets of masks and snorkels.

Thirty Prizes in all!
See Complete List in August Issue.

SHELL TRADE

If you're interested in trading shells with a fellow collector, send us your name and address. Please refer to tips on mailing shells in the June issue.



Basil sketches after a dive with friend, Bruce McGregor. Photo was taken at Castor Bay in the Auckland area.



Teenager Basil Cuthbert likes to paint scenes of divers working off New Zealand coastal waters, as scene above shows.

"I WAS FISHING with a friend off the Castor Bay reef when I lost the spear from my gun. After an unsuccessful search, I decided to watch my friend for awhile. Finding no fish to his liking, he soon presented me with his gun so I could try my luck. Quite by chance I happened on to several good fish and shot five in quick succession. Returning the gun, I made my way back to have another look at the spot where I'd lost the spear. The next time I glanced up, I saw my friend trying to haul a giant ray ashore. I swam in and helped tow it to shallow water. It was bigger than I was, so I had to lay on its back to cut off its barbed tail. By now the blood had stained the water badly, which might attract something even bigger, so we beached the ray as fast as we could."

This adventure is all in a day's diving for Basil Cuthbert who lives on North Island, New Zealand—a diver's paradise of the South Pacific.

New Zealand is divided by Cook Strait into North and South Islands. North Island, 500 miles long, has the greater population of the two, mainly in Auckland. A chain of mountains runs through North Island, but most striking are the volcanic cones. One volcano erupts only occasionally while another emits steam incessantly. There are many fine lakes, rivers and large waterfalls ranging in temperature from very cold to boiling mud volcanoes. There were no mammals in New Zealand before settlers arrived, therefore, there are no wild animals as such. Best of all, there are no snakes.

The climate is surprisingly mild and lends itself well to ranching. Even citrus fruits grow well here.

Passing from North to the center of South Island, one could imagine he'd landed in Switzerland or Norway. The Southern Alps dominate the view, even from the sea, and the bold coastline is penetrated by fjords extending deep into the mountain ranges. In this land of great contrasts, some glaciers are only 900 feet above sea level.

South Island is sparsely populated with large sheep ranches, grasslands and seacoast resorts. The main mineral wealth is coal and gold. Occasional gold diving has been reported from South Island.

Basil lives with his grandparents, mother and elder brother at Castor Bay, a suburb of

Auckland. He is in the fifth form—which is the same as a Junior in High School.

Three years ago Basil was given a set of mask and fins as a present. From there on he taught himself to dive by reading books and magazines. He usually dives with friends, Bruce McGregor and Phillip Earl. They like to explore the large reef which lies about 100 yards out and is about 20 feet deep on the inside. The outer side slopes down to about 40 feet. Here there is usually an abundance of red moki, rock cod, blackfish or yellowtail. Sometimes they bring in scallops, sea urchins, crayfish (similar to California lobster or paua (abalone).

When he isn't spearfishing, Basil likes to explore caves or make oil paintings of divers working in the colorful underwater world surrounding New Zealand. He uses a slate to draw the main composition underwater. While painting on canvas ashore, he often returns to the water to check on colors or details.

The best diving months are October to March when the water temperature reaches 64 degrees. There are about 5000 skin divers in New Zealand represented by 24 clubs. Basil is a member of the Dolphin Club.

Unlike neighboring Australia, sharks are not considered a problem. Although there are many species of sharks, no one has been attacked. Other hazards exist, however, in the form of giant rays, swordfish, barracuda and jellyfish.

With an unlimited supply of diving coves at his doorstep, you've probably guessed Basil's choice of a career. What else would YOU choose but marine biology? ➤

JUNIOR UNDERWATER MAILBOX
PLEASE ADDRESS ALL LETTERS TO:
JUNIOR FIN FANS UNDERWATER MAIL-
BOX, SKIN DIVER MAGAZINE, LYNWOOD,
CALIF.

PEN PALS

... I am 19, a great diver and excellent swimmer but afraid of big fish. Could I be on your Pen Pal list?

Chuck Finley
1417 N. Sycamore
Hollywood 28, Calif.

... I would like to join a club in Duncan, Oklahoma. I am 12 years old.

Warren Brannon

... I am a 13 year old with a small sister. I am a girl with an interest in diving. I would like a Pen Pal.

Alana Reilly
1886 Wellbourne Dr. N.E.
Atlanta, Ga.

... I have been diving for three years and have read many books on the subject. I would appreciate it if you would drop me a line, and I will answer all letters as soon as possible.

Jim Hollomon
347 Irwin Street
San Rafael, Calif.

... I will be coming to Los Angeles for the summer. Would one of you please write me?

Garry Baker, 19
4143 So. Riverside Dr.
Tulsa, Oklahoma

Jim Steiner, 14
159 Rockcrest Rd.
Manhasset, N. Y.
Barbara Young, 15
2133 Williams
Long Beach 10, Calif.
Ken Weinstein, 14
44 Combes Ave.
Rockville Centre, N. Y.
Bill Alsop, 16
823 N. Belmont
Odessa, Texas
Jacky Binkev, 14
3042 Santa Fe Dr.
Long Beach 10, Calif.
Doug Bergmann, 14
530 Manhasset Wds. Rd.
Manhasset, N. Y.
Don Wilson, 13
916 Stewart Ave.
Ithaca, N. J.
Donald Kozora, 16
11950 Lowe Ave.
Chicago 28, Ill.

Tommy Ivceyich, 11
1847 Trudie Dr.
San Pedro, Calif.
Ron Geyer, 20
131 S. Salisbury St.
West Lafayette, Ind.
Barry Davis, 15
7438 Kentland Ave.
Canoga Park, Calif.
Werner Ziolkowski, 16
97 Hillside Dr. South
Elliot Lake, Ont., Can.

Jack Czura, 14½
616 S. 3rd St.
West Dundee, Ill.

Randy Korman, 16
344 Rockaway Ave.
Oceanside, N. Y.

Spencer Newfeld, 15
3090 E. Derbyshire Rd.
Cleveland Hts., Ohio
Bob Rische, 14
95 E. Dayton
Fresno, Calif.
Ted Beauchamp, 16
1415 W. 5th
Pecos, Texas

Richard Donnelly, 13
2 Juniper Lane
Parrin, N. J.
Gary Willen, 10
351 Lakecrest St. N.W.
Canton, Ohio
Leslie Bromm, 14
301 Stacy St.
Burlington, N. J.
David Jaeger, 15
1211 Jeffery Ave.
Ypsilanti, Mich.
Eddie Welbourn, 10
2780 Club Dr.
Los Angeles 64, Calif.
Douglas Lundberg, 13
18755 Cambridge
Lathrup Village, Mich.
Fred Smith, 15
3524 E. Princeton
Fresno, Calif.
Judy Tuttle, 13
6349 Old West Rd.
R.R. 1, Royal Oak
Vancouver Is. B. C.
Ed Pace, 14
431 Oxford Ave.
Palo Alto, Calif.
Robert Minthorn, 11
22 Grove St.
Poultney, Vermont
Bobby Burn, 14
200 N. E. 5th St.
Delray Beach, Fla.
Abe Wilson, 13
1947 Wilhelmina Rise
Honolulu 16, Hawaii
Murky Lurkers
Divers Club
Gary Bettencourt
4523 Feliciana Dr.
New Orleans 26, La.
Junior Descender
Skin Diving Club
Richard Erekmann,
Secretary, 18
1299 Moores Mill Rd.
Atlanta 5, Ga.
Mike Adams, 9
14 Meadow Lane
Brookside Park,
Newark, Del.
Roy Goodloe
2916 Kilburn
Dallas 16, Texas

Personality Spotlight

BY CONNIE JOHNSON

RON CHURCH

OUR PERSONALITY SPOTLIGHT this month is already well known by SDM readers as the author of many exciting articles and photographer of several SDM covers . . . Ron Church.

Ron, who had just returned from a diving expedition in the South Pacific, was getting ready to leave for a fish collecting trip to Baja California when Skin Diver Magazine cornered him for an interview.

Not long after he began diving his major interest became competitive diving and as a member of the Addicts club of La Jolla, California, was on the winning team of every meet in his area winter and summer for three years.

During his spearfishing era he copped the title for three record fish. "The first one wasn't quite legal because the fish was smaller than minimum requirements," he explained. "I speared the first blue fin tuna ever taken by a diver on this coast in September of 1954 at Catalina Island. It weighed only fourteen pounds, therefore falling a little short of the fifteen pound minimum required to claim a record. But to me it was one of the most exciting moments of my life because I had been shooting at them every weekend for several weeks and was not able to hit them because of their speed."

"Then I heard of the 'Addict Gun' and made one, that made the difference," he said. "I joined the Addicts the next year. The first day in the club I was lucky enough to land a 464½ pound black sea bass without powerhead for a new world record. This record held for four years to be broken by a 480 pounder taken with a powerhead."

Ron's other record was a roosterfish that weighed 43 pounds. Although he doesn't hold a record for the Mexican Pez Fuerte, he thinks it is the most exciting powerful fish he's ever speared. Ron and members of the Addict Club are known for their prowess in spearing hard to get game fish.

Of his many encounters with undersea life (including the shark attack story in June SDM), Ron claims his most interesting, weird and exciting underwater experiences were the three trips made through the half mile long pipe from the ocean, under the highway and finally emerging inside a building. (See December SDM for complete story).

"I guess that I've had an opportunity to see shark behavior as very few other people have," Ron said. "After you swim with sharks as much as we did at Canton Island and Johnston Island you become immune to them and are lulled into a false sense of security. I feel you cannot predict a shark, what he does one time, he will not do another. However, I honestly feel that the most terrible denizens of the underwater world are panic and the subconscious mind. More people worry and sweat about what they think they are going to see than what they actually do see."

"I go underwater for relaxation and enjoyment and I like to spearfish for fast game fish," he went on. "But just as much fun if not more is underwater photography. Being able to stalk fish and shoot them with the camera, then being able to see it again over and over. I like to explore new areas looking for new and strange little fish and animals. You really never get a complete enjoyment out of diving till you just stop somewhere and take a real good close look at the bottom. Then you suddenly realize that this is a whole little universe in its own. So many people when they dive or spearfish are in such a hurry to get somewhere that they miss three-fourths of the environment."

Ron likes to experiment with underwater photography and in the course of the interview some helpful information came out that we'll pass along to our underwater shutterbugs.

Ron, whose excellent photography speaks for itself, said, "I develop all of my own color film and make my own dye transfers and type C color prints. I find a lot more versatility and more rewarding results by modifying the development times on color film to increase contrast. Lately I've been shooting most everything on negative color film. With this material, one can: make black and white prints, color prints, and good quality color transparencies all from the same color negative. The color is controlled in the enlarged instead of stacking filters on the camera. In my underwater photography I strive to show the color as it exactly is, not

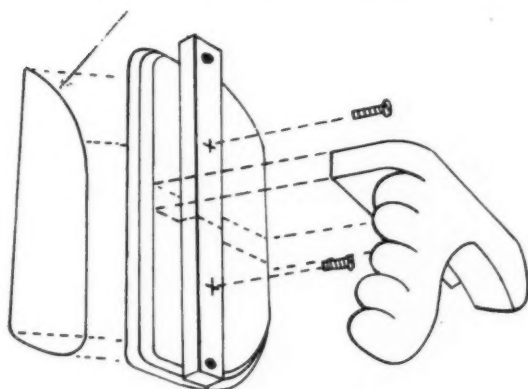
(Continued on Page 77)



UNDERWATER CAMERA CASE

By WAYNE DOLLACK

Interior Aluminum Plate

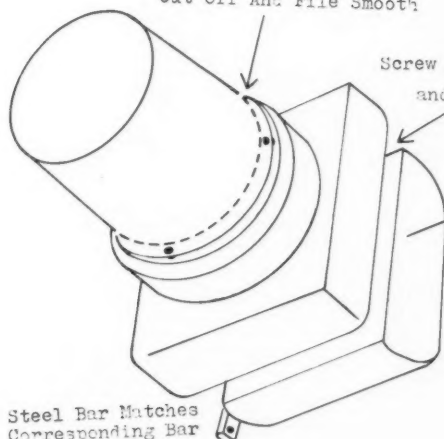


STEP # 1

Remove all interior workings and on the external portion of the removable plate, take off crank handle and file off small obstructive pieces. Fit a piece of 1/4" aluminum in the interior with a clearance for a 1/8" rubber gasket to form a seal around lip of case. Cut two pieces of 1/4" by 1/2" steel bar and drill holes top and bottom, then secure fiber glass handle.

Cut Off And File Smooth

Screw Together and Seal



Steel Bar Matches Corresponding Bar

STEP # 2

On the front portion of camera case, remove extruding piece of lens shield and file smooth. Then cut a round gasket of 1/8" rubber to fit interior ring. Cut a piece of 3/16" plexiglass to fit same ring and file edges smooth. Secure parts together with three long nuts passing through protective lens and ring.



Made from a war surplus aircraft camera at a cost of \$30.00, this particular camera case was modified for use with the Hondo all-electric 8mm movie camera. It has one release, that of the shutter. The case has been tested to a depth of over 100 feet without pressurization and can, with some thought, be modified to fit other cameras.

Weld or screw case together and seal bottom portion and front section and file smooth. Handles can be formed by making mold and using resin material. Secure right hand handle to case, file smooth and paint entire housing.

KILLER WHALE!!



MEANEST THING IN THE SEA

By ADEN F. ROMINE

Illustration by Tony Sgroi

CAPTAIN BENNY MCGUIRE leaned back against the neat folds of the purse seine on the fantail of the forty-five foot boat, *Maria Lark*. He clasped his hard, salt-withered fingers over the huge brass buckle at his middle and pondered the ragged tuna pennant that fluttered from the mast of his vessel.

"The most terrible fish that ever lit aboard this tub damned near put me an' me three mates in the drink off Point Conception," he said, thoughtfully scratching the undercarriage of his red-whiskered jaw. "It was a killer whale—orca to you, and that's why I bring along a rifle now'days. All the saints protectin' Ireland and the Irish were with me that day. Else, I'd never 'ave come back" Captain McGuire sucked the morning's fresh brine air into his lungs. "No, sireebob, I'd never 'ave come back."

In all the seas of the world, and in all of Benny's world, there never was a more brutal creature than the killer whale. There isn't a mammal that can beat it in battle except that titanic cetacean, the Sperm whale, and even then there is a question.

The killer whale is the bitter enemy of man and every marine animal that roams the pelagic waters of the sea, because there is not a fact on record to disprove it.

A member of the Delphininae class of cetaceans, the killer whale is one of the few toothed whales that can do anything with its teeth. While the length of the bull rarely exceeds thirty feet, it is nothing for the orca to attack and kill the largest of all mammals, the Blue whale or Sibbald's roqual, which, outliving the whaler's harpoon, grows to become one hundred feet long.

The killer whale also is known by marine biologists and fishermen from sea to sea as *orcinus orca* ("belonging to the realms of the dead"), and *grampus*. The Japanese call it the *takamatsu*, and the French know it as the *orc*. But whatever the aliases they choose to give it, the word "killer" undoubtedly precedes the word "whale" because of the mammal's unquenchable lust for blood, and the distressing thing is that the killer whale, economically worthless to whalers, in a fight with any of the sea's inhabitants is apt to shed little of its own blood.

The orca has many physical features to favor it along its warring journeys from pole to pole, and one of the main ones is its distinctive color. The killer whale is black and white, but the two colors are distributed in such a way over the chunky body of the mammal to make it one of the most streamlined-looking nomads of the oceans. Principally, the back is black, and this aids as a camouflage in its attacks on other mammals, and the belly of the grampus is white.

Behind its eyes—which are poised near the corners of the whale's mouth—is a spot of white that usually rides backwards and upwards, and behind the dorsal fin is an irregular patch of light hide that in some of the killer whales is too variegated to be distinguished. Flippers are black above and beneath, and fixed to a black portion of the body. Near the tail, the white loops into black territory.

The build of the killer whale denotes its power. The dorsal fin in the male gets to be six feet high, becoming a

triangular alarm of danger to swimmers and fishermen as it cuts through the water. One old solitary bull now on display in the British Museum of Natural History had flippers that were one-fifth its own length, or the size of a Right whale's. The Right whale is a mammal twice the length of the killer.

The flippers, tail, and dorsal fins of the orca help to make it the package of hell that it is. Old writers of whaling stories have sworn that they have seen killer whales follow the rendering ships and flog dead whales, tied alongside the ship for butchering, with their dorsal fins. How much "salt" there is in these stories is unknown, but there doesn't seem to be too much credence allowed it since the orca's dorsal fin contains no bone structure. In fact, at times it becomes a nuisance, being so flexible that it has been seen to drop to one side and then the other as the whale was swimming.

However, the dorsal fin of the killer causes the mammal to be mistaken for other creatures of the sea. In newspaper accounts, writers and reporters who are unfamiliar with the physical picture of the grampus have erred when they wrote of the gregarious false killer whale, the pilot or caa'ing whale, and the swordfish, and even occasionally the white or grey shark, in place of the killer whale. In fact, the pilot whale has been maligned in so many newspaper articles as an inshore invading killer whale that it should be a swimming persecution complex for even the boldest.

The orca's dorsal fin is a tremendous mechanism of balance, keeping it upright when it cruises at fifteen knots and when it opens up all jets in pursuit of prey at about thirty knots. More than once it has been the dorsal fin that tipped off swimmers that they were the targets of approaching killers.

The female killer is not any less given to voracity than the male, although her maximum length is near sixteen feet. There is the same power, the same instinct to kill, and the same markings on the female and her calf as in the bull, with the possible exception that the underneath of the calf's jaw is yellow in color instead of white.

Many a time the polygamous bull shows off his brute strength to his dutiful wives by slashing into a herd of beluga, or white whales, and ripping them to pieces for no apparent reason other than an inborn pride in murder. I once watched a killer whale and a California gray whale battle it out off La Jolla, California. The gray whale, much heavier, also was much slower, and the orca literally chopped it apart.

The killing end of the grampus is something to ponder. In each of its jaws, the orca has from ten to twelve conically-pointed teeth. The teeth, large and powerful, are connected "cog fashion," and they are flat on two sides so their cross-sections are slightly elliptical, rather than circular.

No other mammal in the sea is better suited for a predatory career. Set in sledgehammer jaws, the upper and lower teeth interlock. The Sperm whale, or cachalot, the only natural enemy of the orca, has twenty to twenty-six teeth, massive ones, in the lower jaw and eight pairs of malformed teeth in the upper jaw. Despite its hugeness and its teeth, the killer whale still has an edge in battle because of its maneuverability.

The boxcar build of the orca and its speed in the water, make it one of the most feared of mammals, but this coupled with its savageness should put it in the lone category of being the most terrible thing in the sea.

One of the most famous renditions of an attack by killer whales was recorded by a photographer who was with Captain Robert F. Scott's British Antarctica Expedition. The photographer claimed that while he was sledging

(Continued on Page 60)

UNDERWATER ENDURANCE

Divers are shown underwater during actual record attempt. Joe Mangus, at left, a winner, takes nourishment as Pat Morrison, center, another winner, watches crowd. (Photo by Otto Schutte).



UNDERWATER for more than five days and nights—126 hours and 31 minutes, to be exact.

Three divers, including an attractive housewife, stayed submerged that long in a 27-foot tank to set a new world's endurance record at the recent Canadian National Sportsman Show in Toronto. The record-breaking trio were still going strong when the Show ended and they had to be brought to the surface.

In setting the new mark, which exceeded the old by 23 hours and 15 minutes, the divers had to solve problems of prolonged living in the alien underwater world, including eating, sleeping and communicating with the outside.

The three who now jointly hold the



Just before record attempt, contestants left to right, are: Alberta Jones, Bill Ryckman, Marty Mock, Joe Mangus, Ben Thornton, Canada's Outdoor Girl of 1961, Pat Morrison and Ed Cummings. Jones, Mangus and Morrison won with a stay of 126 hours and 30 minutes. (Photo by Alex Gray).

record are Mrs. Alberta Jones, Hollywood, Calif., the diver-housewife; "Little Joe" Mangus, Middletown, Ohio, an engineer and diving instructor, and Pat Morrison, Toronto, a pool manager and swimming instructor.

Their underwater sojourn, along with that of five other contestants who surfaced earlier, was punctuated by one particularly tense moment.

On the third night, all contestants were startled from sleep when their air supply suddenly stopped. A sleepy outside attendant had inadvertently shut off the main air supply valve. An outcry from others on duty resulted in restoration of the air.

The three winners surfaced from the bottom of the diving tank after exceeding all but the most optimistic expectations for endurance. Besides earning the distinction of being world's champions and sharing in \$4,500 in prize money, the winners and other participants confirmed an old lesson in diving—that safety precautions and detailed planning pay off.

Lou Singer, head of Supreme Divers, Toronto, widely-known distributor of diving equipment, spared no effort in this vital phase. Supreme, in cooperation with the Sportsman Show, sponsored the contest.

A team of medical students from the University of Toronto, composed of members familiar with possible complications of prolonged immersion, was brought in to provide continuous supervision. The Leaside Underwater Club and the Toronto Skin Divers Club volunteered their services to form a safety diver team. As an added safety measure, tenders were assigned

Remaining contestants are taken from water. Little Joe Mangus rests on stretcher as Pat Morrison is helped from water. Alberta Jones is on another stretcher out of picture. (Photo by Alex Gray).



to keep contestants under constant observation from outside the tank.

Under Singer's watchful eye and before a large audience, the eight contestants entered the tank at 12:30 p.m. on March 21, 1961, to begin their adventure in underwater living. Until they emerged their world was to be one in which ordinary life functions and activities would become major challenges.

Most important, of course, was breathing. All contestants used Sports-ways Waterlung regulators. In addition, four high pressure compressors, two gasoline and two electric, and one manifold (capacity 3,640 cubic feet) were on location throughout the contest. On a pressure reduction valve leading from the manifold was an arrangement with eight attachments utilizing the second stage of the Waterlung regulators. These units relieved the safety divers from almost continuous bottle changing. Reserve bottles were instantly available as an added precaution.

So that contestants could have a choice of food and eat when they desired, a specially installed kitchen was provided where several of the wives took over food preparation. A record of calorie and protein intake of each contestant was maintained by the medical staff. It was found that boiled eggs, bananas and steaks lent themselves especially well to underwater dining. Liquids were taken by means of squeeze and pop bottles.

During sleep, the problem of body flotation resulting from the use of wet suits was met by weighting down contestants to their cots. The lead weights were periodically shifted to different parts of the body to eliminate bruising from the constant pressure.

Contestants found that reversed writing on windows of the tank was

(Continued on Page 69)

WE DIVE FOR SCIENCE

By JOHN W. FOERSTER

Shades of Jack Frost . . . SDM offers one last touch of winter's icy fingers as biology students combine diving with science.

THE TREES were covered with bristling ice crystals. The sun rose high across the steel blue heavens as we headed west, jostling and bouncing to the movements of my power-wagon as it plodded rutted back country farm roads. Our destination lay fifteen miles northwest of Mt. Pleasant in the heart of Central Michigan. The objective was a glacial gouge lying between low morrains in a glacial till called Coldwater Lake. This lake, long and thin, is fed by springs and a small river, having its long axis swept by prevailing west winds.

It is February in Michigan, the "Land of Lakes," and the winter has been severely cold causing the ice of the lake to deepen to a depth of twenty-four inches. The last time we dived the ice was only eight inches thick, but now it was more of a challenge.

Four days previous, my safety man Jim Kolch, my wife Pat, and I went to the lake to chip a hole. The cold, and the thick ice prevented ready access, but four days (eight hours all told), and one broken spud later we chipped a hole four by three feet into the ice over the deepest part of the lake—65 feet.

My purpose in diving into this lake

was for science. I call my team the Underwater Survey Unit, and as biological students at nearby Central Michigan University we have undertaken the problem of devising suggested techniques for sampling chemically and physically the bottom of Coldwater Lake in the interest of the science of Limnology (Greek: Limnos—fresh-water; ology—science). We have been studying this lake since May of 1960, and plan to study it in all kinds of weather, in its notorious poor visibility (pitch black after ten feet), and extreme cold at all seasons.

This day was very nice, unlike the previous bone chilling, snow drifting, windswept, cold days we had dived on; we were at it once again. I drove my truck over the road embankment and out onto the lake ice. Feeling I would rather be safe than sorry, I left the wagon a hundred yards from the hole on ice solid to the bottom. From here we proceeded on foot to our access with all the gear on a sled.

Jim and Pat spudded the hole free of the few inches of ice that had accumulated over the night, and dropped our graduated line. The line is graduated every one meter (3.281 feet) for the purpose of sampling temperature, light, and chemical proper-

ties at a given depth in a straight line. I wore a quarter inch neoprene wet suit, twenty-three pounds of weight, a single tank block, and the remaining accessories. As I stood above the hole preparatory to entering the water, I looked at the greenish-black liquid cold and forbidding, and thought at least the water would be warmer than standing here in the cold and snow. I slipped into the frigid water (35 degrees at the surface), a little of it seeping under my suit and shocking my senses into sharp keenness.

Grasping my water sampler (a device I had constructed previous to the beginning of my studies), I descended the sixty-five feet to the bottom. My breaths came fast and quick until I became adjusted to the cold, and settled down to the rhythmic breathing I am accustomed to. Ears having cleared as readily as usual, I descended slowly toward the bottom where I tripped my water sampler, and obtained a volumn of water. Here at this depth little life exists to the naked eye. Only the vast colonies of reducing bacteria, some blue-green algal plants, and midge and chaoborous fly larvae inhabit these dark depths. My sample collected, according to meth-

(Continued on Page 64)



Coldwater Lake... black, barren, windswept, 294 acres of ice two feet thick.



Safety man Jim Kolch spuds hole free. Below, inky green water is 65 feet deep.



Author John Foerster delivers water sample to Jim Kolch for chemical analysis.

DRIFTWOOD

Please address all notes, letters and stuff to:
"DRIFTWOOD"
Skin Diver Magazine
Lynwood, California

"A Foolish Consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines."

—Ralph Waldo Emerson

Hello, you characters . . .

Well, don't just stand there: shag on out here, and park it upon these sun-bleached planks. Should this be the first time you've spotted our wretched jetty on this lonely stretch of beach, I better tack up a few words of warning. If you honestly believe organizational thinking is constructive; if you would rather chant platitudes than attempt thinking for yourself; if you actually like group-activities; if you believe men and women are equals, and if you consider yourself flawlessly well-adjusted to what you view as a harmonious, secure existence—then, frent, you better not set foot on this jetty unless you care to risk being constantly confused and enraged by the rampant atmosphere of individualism that swirls around these hardy pilings. On the other hand, if you are inclined to a chronic passion for sand, sun and water; if you honestly believe all the sound and fury of alleged mortal achievement is meaningless compared to a shoreline's summer sunset; if you like going barefoot and carefree when others around you are cautiously garbed in dignity and poise; if you know your own neurotic high-spots and don't give a chrome-plated damn who sees them—then, frent, you're our kind of problem-child and you'll probably want to live on this absurd jetty until the oceans evaporate and the stars flicker out.

How about you pouring the coffee while I fend-off some of these marauding creatures who are still circling in hopes of taking a bite out of O. Keith (may his name sing forever on the vagrant wind) who has sailed mystically over the distant horizon . . .

I dropped in to find out what's going on. Cut out the jokes! We want Kohler back! Without him, the whole barnacle-encrusted jetty is rotting. *Driftwood* is decaying under your very nose.

ALISON A. ORR
Storrs, Connecticut

No, it's always smelled that way around here.

My dislike for you and your writing increases with each new issue of *SDM*. Your use of profanity is childish, your poetry is corny and your style is comparable to that of an eighth-grader. It looks to me as if you're trying to change Kohler's brisk mailbag column into your own self-centered bag of prose. In May, *Driftwood* contained 47-lines of the subscribers' words, and 232-lines of your junk. The critics were the loyal subscribers, not wanting to miss Carl's snappy remarks. But he's gone, and I guess we'll have to be satisfied with you.

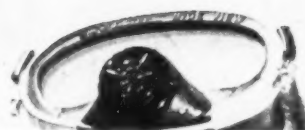
RALPH C. TURNER
Schenectady, New York

Why be satisfied with the best now that I've managed to convince that broth of a trusting boy, O. Keith, that there's an island of wantonish virgins just a few miles beyond Catalina, and he's frantically paddling that houseboat out there, searching for it—when you can be satisfied with the likes of me?

O. Keith, I think your distinctive handling of what was once (When Kohler had it) a corny column is something to be grateful for—and I want you to know my wife and I enjoy your comments very much. Your stuff has an air of maturity and intelligence which Kohler's mess of words just never quite managed to achieve. Good luck and keep going!

ERNIE & MILLIE UHLSTEAD
Chicago, Illinois

Do you know that's exactly what I yelled at O. Keith just before his houseboat vanished into the distance?



I shot a spear into the sea,
It bottomed I know not where.
And just between yourself and me,
The fact is—I do not care.
It was a borrowed spear, anyway.

HAL GIBSON
Salem, Oregon

Now what kind of an attitude is that?

I just don't know. First, there were years and years of Kohler's blah and gurgle. I kept hoping things would, eventually, take a turn for the better. In fact, optimist that I am, I was certain that—sooner or later—SDM would come to it's editorial senses and find a more entertaining way to waste two pages of expensive space. Then, just when I was hardened to Kohler's urchin-glop, you showed up, O. Keith. And, while your approach is surely different from Kohler's, your basic ability to provide the magazine with a sparkling pool of bright wit and hilarity is only slightly better than your surly, bohemian-ish predecessor. While this letter obviously isn't calculated to give you any reason for feeling successful, you must admit you've got honest readers.

HAROLD JAMES
Tampa, Florida

Listen, you don't know how lucky you are *SDM* didn't unleash Laura Louise Hales—and her *All Girl Attitudes*—or Peggy Marie Walker—and her chronic *P.T.A. Mindedness*—on you, buster.

As a very curious-minded gal of twenty-three summers (34-24-35, blue-eyes, black-hair and olive-complexion), I would like very much to see a picture of you, O Immoral Beard! I like the way you think and I adore your manner of expressing your thoughts. How about it? Won't you let this fond fan have an idea of what you look like? I might even go for you!

JANIE BLAIR
King City, California

O. Keith stands nine-feet tall in his stocking feet, weighs-in at one-hundred pounds, vaguely resembles a blend of Rock Hudson, Dick Nixon and Yogi Bear, facially. Moreover, his present interest in a certain non-existent island is keeping him far too preoccupied to think about sexy, mainland dolls like you. However, you may write to him c/o John Gaffney, a rather decent chap who possesses a talent for intercepting O. Keith's more troublesome mail. And, if you do—watch out for that Gaffney: he's been Olney-trained.

DEPARTMENT FOR STAMPING OUT REALITY

Far below the sea's top motion,
In the depths of any ocean,
I will travel—alert and wary,
Seeking sights, I shall not tarry.
Sights of beauty, sights of glory,
Action scenes both mild and gory,
Stimulating sights most awesome—
Far below the sea, I saw some.

KEN PELTHAM
Baja California

What are you—some kind of peeking-nut?

DEPARTMENT FOR DISORGANIZED UNITY AND OTHER PHASES OF ABSOLUTE CHAOS

Can you imagine my utter surprise when I opened my copy of the June SDM—expecting to find more of O. Keith's varied remarks—and found, instead, your hairy face staring into my startled eyes! And, if this wasn't enough to give an urchin the glops, I find the entire two-pages snugly ensconced safely again within the 3-mile limit of Kohlersville waters.

LOUISE CAMERON
Cleveland, Ohio

Ensneced? ENSCONCED? Watch yer dirty mouth, sweets.

Kohler's back—and who needs him? Well, it was a pleasant reprieve, while it lasted. Now I suppose we'll be subjected once again to the usual amount of galling inanities and pure drivel which are the hallmarks of a mind gone dry with effort and bitterness.

GRANT QUINN, SR.
Yonkers, New York

Like you're so dammed right, man.

Kohler, we missed you! Where in the world did you disappear, during those long months of absence? Come on, tell the blazing, ruthless truth as only you know how to blurt it out! Where . . . were . . . you?

MONA ROBERTS & FRIENDS
Brainerd, Minnesota

Well, I fell in with evil companions—and these green-eyed brunettes promised me that I would learn all KINDS of interesting things if I would just traipse up the beach and . . .

I've just begun following *Driftwood* and so you'll have to excuse me, in case I'm not getting the right reactions yet, but it seems to me that the way you knocked that nice letter by Charles Sweet (June SDM) was hardly amusing or clever. Here, the guy sends you a photo—proving that skin diving and related watersports can be a family adventure—and your snide reply would infer there's something wrong with wholesome family outings, where each member of an American family enjoys not only the company of the others, but sharing the excitement and responsibility of learning to properly use skin diving equipment, thereby adding invaluable new members of this rapidly widening sport. I get the distinct impression you are contemptuous of families who love one another enough to want to share the mutual joys of diving and swimming as a sane-minded, skilled group. Am I right?

LEONARD FOXE
Toronto, Canada

Boy, have I got news for you . . .

I realize you probably won't want to print this letter (and I wouldn't blame you if you don't even care to answer it personally), but I could've sworn I saw you at a recent AA meeting in Los Angeles. Anyway, if the guy I spotted across the room, wearing a beard and looking enviably confident, *wasn't* you—then, you've got an identical double, Kohler. I just thought you'd like to know I've found skin diving a wonderful addition to my newly-found life of sobriety and happiness—and I'm grateful for the sport, as every chronic alcoholic should be who finds the skin diving sport a wonderful outlet for resentments and frustrations. Getting underwater is probably one of the finest forms of emotional and physical therapy ever to be offered the average man and woman. Anyway, I still think I saw you there that night.

ANONYMOUS
Los Angeles, California

God grant me the serenity to accept the things I cannot change—and just why in hell do you think I keep this coffee pot hot? Good, safe diving to you, brother, and keep your humility polished, eh.

SKIN DIVER—July 1961

Oh, lordy! I see you're back with us—and *Driftwood* is going to echo with resounding cries of your usual, egotistic crapola. My entire diving club buddies and their wives think you are strictly from *nowhere* with your unfounded criticisms of clubs, teenage and women divers and star-mops. We realize a large portion of your controversial stirring-up is deliberately done to stimulate interest in *Driftwood* (think *everybody* is stupid?), but we sure wish you'd find a fresh way to sing a new song: you tend to repeat yourself, sometimes.

RICK REINHARDT
Dallas, Texas

Looky, Tex, let's just face it: I'm plain old fabulous and we all know it.

Now I'm *completely* confused! I don't know whether O. Keith is really Kohler, or whether Kohler is really O. Keith—or even if O. Keith and Kohler actually exist at all! This just isn't fair, gents! *Who is who?* And what assurance have I that photo (June, SDM, *Driftwood* page) is really anybody? Please—some *facts*!

BARBARA HELLER
Honolulu, Hawaii

Why, certainly, honey: Kohler O'Keith is simply the pen-name of the erudite chap who REALLY spawns this shoddy prose with the changing of each tide. His real name is Don Morrison and he lives in abject harmony (still dreaming of those halcyon yesterdays when he was known as The Lecher Of South Laguna up and down the sandy vistas of the Western Coast) with his gorgeous and domineering young wife and their adopted family of thirty-seven homeless and uncherished surfers—ranging in age from 42 to 91. As for that misleading photo: it's an unposed shot of Commander Freelance Moneyhead, taken moments before he was, tragically, sucked down the drain of the oval-tank, when Marineland-of-the-Pacific changed the water—and has never been seen or heard-from since. You will of course, treat this information confidentially.

I have a simple question. Why—at a time when serious knowledge about skin diving is so badly needed; when clubs across the country are enjoying growth and progress; when more people than ever before are becoming interested in the sport; when diving is just beginning to be taken seriously by an entire nation—why, oh, why, must two-pages of space be lavished upon the sheer, pointless nonsense of *Driftwood*?

WILLIAM INGELS
London, England

Damned if I know, sport.

*. . . and now let's see a whole slew of photos of dazzling beach-beauties wash ashore beside the jetty so we can rest our eyes upon something prettier than multi-colored outcries of ill-concealed hate and discontent as well as those muddled whimperings of affection and untoward approval. Feel free to trot over here, next month, and if you're anything of a friend—you'll bring a 2-pound can of coffee and an extra wench with you. Man isn't made of *Driftwood*, you know.*

KARL KOHLER, Keeper Of The Koffee Kettle,
Guardian Of The Reef and
keys made while U wait.



NATIONAL ASSOCIATION OF UNDERWATER INSTRUCTORS

INSTRUCTOR TRAINING, TESTING AND CERTIFICATION COURSES

Chicago, Illinois, August 6-12
Ft. Lauderdale, Florida, August 13-19
Toronto, Canada, August 14-19

There follows below, for the information of divers generally and prospective Certified Instructors specifically, an outline of the details relevant to Certification Courses for Instructors in Chicago, Ft. Lauderdale and Toronto.

GENERAL

It is felt to be in the best interests of the public and divers in all areas, that the training, testing and certification of instructors teaching skin and scuba diving be continued without delay. As a result of this feeling, arrangements have been made to provide such a course in Chicago, Ft. Lauderdale and Toronto.

LOCATION OF COURSES, ACCOMMODATIONS AND MEALS

The Chicago course will take place at the Glenview Naval Air Station. Housing for out of town residents will be provided at Glenview at a very minimal cost. Meals are available.

Dr. Walter Kerker, author of "Medicine Under Pressure" in Skin Diver Magazine, will lecture to the Chicago class. Also present to teach will be Donald McNaught, Fishery Biologist of the University of Wisconsin Department of Zoology, expert on fresh water fishes.

The Ft. Lauderdale course will be held at the Galt Ocean Mile Hotel, making use of the lecture and pool facilities of the hotel. Rooms are available at a cost of \$3.50 per night with occupancy by a team of four persons. Meals are available at the hotel and local restaurants within five minutes walk of the hotel.

The Toronto course will take place in the University of Toronto, making use of its available lecture and pool facilities. Housing for out of town applicants will be provided in Devonshire House, a University student residence on Devonshire Place, at a cost of \$4.00 per day per person, not including meals. Meals are available at local restaurants within five minutes walk of the lecture rooms.

TIME, DURATION AND COST OF COURSE

The Chicago course will take place August 7th-12th inclusive. (Registration August 6th). The Ft. Lauderdale and

Toronto courses will take place from August 14th-19th inclusive. (Registration August 13th). Lectures and pool classes will be from 8:00 a.m. to 10:00 p.m. daily except Saturday. An open water dive will be held on Saturday which will last half the day. The course will cost each applicant \$75.00 to be paid as follows:

- A. \$40.00 to accompany application
- B. \$35.00 payable at the beginning of the course.

In order to insure a place on the roster for the applicant and reserve his room, the \$40.00 application fee is required.

The cost includes the graduation dinner, tanks and air, diploma, certificates and instruction.

EQUIPMENT REQUIRED

Each instructor candidate must supply his own mask, snorkel, fins, regulator, swim suit, towels, notebooks and writing materials. Tape recorders are not allowed to be used during the course.

WHO ARE THE SPONSORS OF THIS COURSE

It will be necessary for contracts to be drawn up with special lecturers, with the hotels, University and with others for various services. These contracts must be drawn up by a legally constituted body. The Chicago and Ft. Lauderdale courses are under the direct supervision of the National Association of Underwater Instructors, which is incorporated. The Underwater Club of Canada, which is incorporated, has volunteered to take on the responsibility of legal sponsor of the Toronto course. The other sponsors of the Toronto course are the Ontario Underwater Council and the Etobicoke Underwater Club.

REQUIREMENTS

The following are suggested as being basic, fundamental and essential qualifications of an applicant to this course:

1. A thorough knowledge of the techniques and theory of skin diving as applied to basic and scuba equipment.
2. At least 18 months experience in diving. (Approximately 100 hours underwater).
3. Age 21 years and over.
4. A medical examination made within six months prior to the course, assessing clearly that the applicant is fit for diving. The medical form will be provided by NAUI.
5. Some instructional experience, preferably with a club, YMCA or diving shop.

STEPS TO APPLICATION

1. Fill out the application form below stating your desire to undertake the course.
2. Provide a check or money order payable to the National Association of Underwater Instructors for \$40.00.
3. Provide a letter of recommendation.
4. A picture for publication in Skin Diver Magazine.
5. Address correspondence to:
Board of Directors
National Association of Underwater Instructors
P. O. Box 111
Lynwood, California

Application for the Toronto course may be sent directly to:

Board of Directors
Instructor Certification Course
Box 422,
Adelaide Street Post Office
Toronto, Ontario, Canada

6. Keep in mind that this course is difficult. Each applicant should devote much time to diving and study of the texts below prior to the course.

WHAT CERTIFICATION MEANS

In short, certification means that successful graduates will be competent, qualified and recognized instructors of skin and scuba diving. We are striving to have at least one such instructor in every club and store selling diving equipment.

The value of having a Certified Instructor in each club and store selling diving equipment is immeasurable, and stores, clubs and other groups would be very wise to help and assist with the expense of sending an enthusiastic, qualified and competent instructor candidate to take this course.

CLOSING DATE FOR APPLICATIONS

Applications received by July 15th will receive preference. Final date for receipt of application—Chicago, August 1; Ft. Lauderdale and Toronto, August 5, 1961.

FINAL NOTES

1. Extenuating circumstances forcing cancellation by an applicant will be considered by the Board of Directors, and a refund will be made if circumstances are satisfactory to the Board.
2. Families accompanying instructor candidates will have ample time for sight-seeing, shopping and other activities. Where possible special events will be provided for those accompanying the candidates.
3. At the graduation dinners on Saturday, August 12th and 19th, Diplomas and wallet-sized cards will be issued. This dinner promises to be something worth remembering, as in fact will the whole course.
4. Texts to be used for the course are, "The Science of Skin and Scuba Diving," Association Press, New York, and "Educational Psychology in the Classroom," John Wiley and Sons.
5. Diving ability is important and fundamental to this course. It is the intention of NAUI, The Underwater Club of Canada and The Underwater Society of America to turn out professional instructors.

BOARD MEMBERS—Toronto Course

Bruce Babcock, President, Etobicoke Underwater Club; George Burt, Vice President, Underwater Club of Canada; Ben Davis, President, Underwater Club of Canada; Ed Day, Treasurer, Underwater Club of Canada; Herb Ingraham, N.A.-U.I. Certified Instructor #41, and Editor, The Ontario Diver; Ken Lynn, Past Secretary, Ontario Underwater Council; Bob Smith, President, Ontario Underwater Council.

NATIONAL ASSOCIATION OF UNDERWATER INSTRUCTORS

☐ Ft. Lauderdale, Florida ☐ Toronto, Canada ☐ Chicago, Illinois

Name.....Age.....

Address.....

City.....Zone.....State.....

Strong Subject.....Weak Subject.....

Years as Instructor.....

Deposit (\$40.00 minimum).....

Send to and make checks payable to
National Association of Underwater
Instructors c/o Skin Diver Magazine, P. O.
Box 111, Lynwood, Calif.



Beautiful Ponchartrain Beach, New Orleans' playground and magnet to visitors to city year around.



Fancy ironwork, framing stately St. Louis Cathedral, is characteristic of New Orleans' old French Quarter.

Second Annual Underwater Society of America CONVENTION

WAY DOWN YONDER in New Orleans—that's the land of skin divers dreams, come August 23-27, as the Underwater Society of America's Second Annual Convention and first National Triathlon Scuba Championships get under way.

New Orleans has been a gracious host since before the days of Jean Lafitte, the pirate, and thousands of visitors and conventioners leave the city annually with a touch of nostalgia as they remember the beckoning call of the Vieux Carre with its beautiful patios, fine restaurants and the never to be forgotten night life of Bourbon Street. There is something for everyone in the Vieux Carre and yet conventioners will want to take rides on the last paddle wheel steamer on the Mississippi River; dash out and take a look at the famous dueling trees in City Park; and, of course, a must is Jackson Square surrounded by the Pontalba Buildings, the first and oldest apartment buildings in the United States, the Presbytere and Cabildo and Saint Louis Cathedral—all over 150 years old and have been a mecca for visitors for a decade; cafe au lait and bagets (doughnuts) at Cafe DuMonde (side walk cafe); a trip down Pirate's

Alley, headquarters for our artists' colony; and of course, Royal Street is a must whether you want to buy or just browse through the fabulous antiques that are to be found in the countless shops. The leading restaurants in the United States are found in New Orleans, and the number one restaurant of New Orleans and the nation is Antoine's. A two hour trip on the West Bank River road brings you to several old Plantation Homes that are open for public inspection. It is two hours by car to the famous Evangeline Country, the heart land of the descendants of the French Canadians who came to South Louisiana.

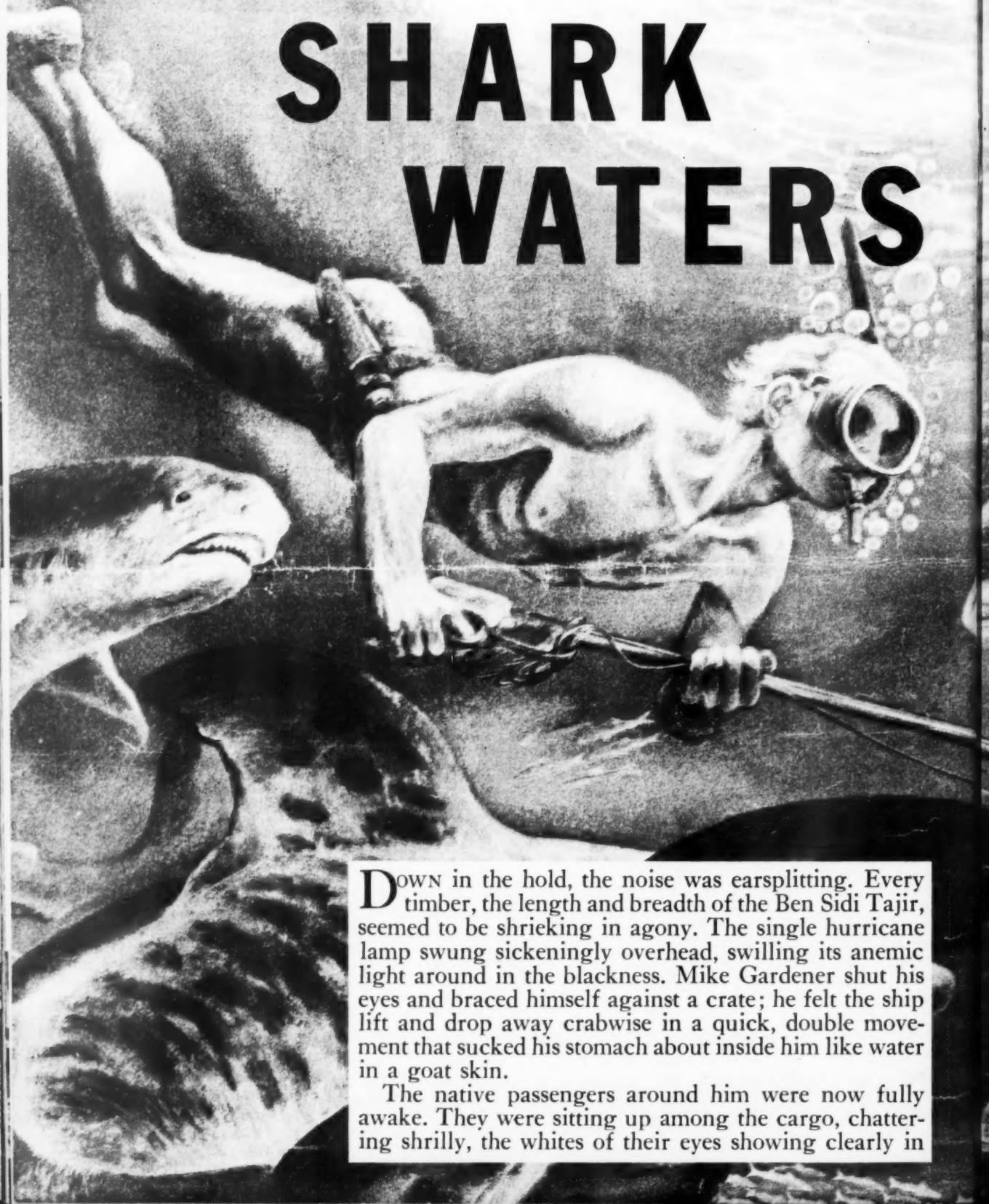
Ponchartrain Beach and Lake offer unlimited relaxation and amusement whether its on rides or relaxing on the beaches. Ramblings that a Conventioneer might do are: find out that the Irish Channel is not a channel at all but was once a colorful Irish settlement . . . Visit Pat O'Brien's beautiful patio and twin piano bar for continuous sing-alongs . . . Visit Montalbano's unusual alter room . . . A refreshing drink at the Old Blacksmith's Shop, a hangout since the days of Jean Lafitte . . . A Ramos Gin Fizz at the Roosevelt Hotel . . . A bowl of gumbo at the Gumbo Shop . . . A

stroll along the banquette (sidewalk) in the Vieux Carre (French Quarter) looking at the beautiful wrought iron exteriors and century old buildings like the old LaPrete and, of course, the nocturnal atmosphere for which New Orleans is famous.

Grand Isle, site of the one-day event for the Triathlon, was once Jean Lafitte's headquarters and it has been presumed for years to conceal many caches of treasure. To date nothing has been found but there is always a first time. If divers want to get in some good fishing, a trip to the oil rigs offer just about anything that you would want to shoot for. For the treasure hunter, the Western Isle of the Chandeaur Group has since 1871 been the supposed location of some pirate loot, also the Isle de Gombi. Others, too numerous to mention, all supposedly full of buried treasure, are nearby.

Convention headquarters will be at the Jung Hotel and registration starts on the 22nd and 23rd. Business sessions and meetings are split between the Jung Hotel and Pontchartrain Beach and ample time is allowed for the "Divers Mardi Gras" as the convention is billed.

ALONE IN SHARK WATERS



DOWN in the hold, the noise was earsplitting. Every timber, the length and breadth of the Ben Sidi Tajir, seemed to be shrieking in agony. The single hurricane lamp swung sickeningly overhead, swilling its anemic light around in the blackness. Mike Gardener shut his eyes and braced himself against a crate; he felt the ship lift and drop away crabwise in a quick, double movement that sucked his stomach about inside him like water in a goat skin.

The native passengers around him were now fully awake. They were sitting up among the cargo, chattering shrilly, the whites of their eyes showing clearly in

By JOHN KRUSE

the lamplight. There were about twenty of them, traveling freight, like himself from Ceylon to the Maldive Islands.

The Ben Sidi Tajir was a Maldivian schooner, and her run was between Colombo and the islands. She was a cross between a felucca and a Spanish galleon, and her crew was a ragged bunch of moplas, descending from the old Malabar Coast pirates. There was nothing those moplas didn't know about the sea. They had smelled the wind coming five hours before it hit the ship. The ship was a full day out of port. There was nothing they could do but keep running and hope to miss it. When the wind was an hour away, they knew by the sky that they didn't have a chance. It was two in the morning, and Mike was asleep on deck. They had shaken him awake and told him to get below. Then they had dropped the big triangular sail, battened down the hatches and heaved to.

The only passenger accommodation was the hold, and Mike had gone down there wondering what the panic was. He didn't wonder for long. It was a hurricane.

It hit the mainmast with a shock that went right down into the ship and set up a howl in the rigging that made Mike's hackles creep. The ship was half empty, and with all her galleon-like superstructure in the stern, she began to roll like a tar barrel.

Mike braced himself with his feet and listened to the grinding timbers and cursed. There were safer ways of getting to the islands than in this relic, but not as cheap; that was the rub. When you speared fish for a living, you couldn't afford to ride fancy.

He was on his way to the Maldives to try the spearing there. He was planning to fish his way through the reefs, selling his catches as he went—a sort of working vacation. His spear gun lay on the rice sacks beside him, with his fins and mask strapped to the trigger guard. His only other baggage was a pack containing a change of clothing, a dozen harpoon heads and the sixty-foot reel he used for spearing in deep water.

The storm seemed to be getting worse. He could hear the Diesel auxiliary laboring hard in the struggle to keep the ship's head into the wind, felt the screw race in the air each time she toppled down into a trough. Near him a mopla woman lay on the sacks clutching her belly and whimpering. She was pregnant, and Mike couldn't tell if she was in labor or just seasick. She didn't seem to belong to anybody. He spoke to her in Singhalese, but she made no sign that she had heard him.

Suddenly the ship gave one of its quick, double movements. There was a slow, grinding crash, and the vessel seemed to convulse. The lantern leaped from its hook, smashed against a crate and went out. Through the infernal din Mike heard the natives screaming, and, in the blackness, felt the ship heave over on its side.

His instantaneous thought was that they had hit a reef. Then he knew they couldn't have. They were a full day's sail west of Ceylon; the water here was five hundred fathoms deep. The ship was breaking up. He grabbed up his most valuable possession, the spear gun, and struggled toward the mopla woman. He fell across her and she screamed. He shouted at her that it was the American and, gripping her under the armpit, lifted her to her feet and half carried, half dragged her toward where he knew the gangway out of the hold to be.

The natives blundered together in the darkness, screaming and groping for the doorway. A match spurted near him. There was an instant of wild eyes and gleaming bodies. He spotted the gangway. The match went out as the crowd surged forward. The next moment, he and the woman were caught up in a crazy, struggling mass. Someone grabbed onto his back, clawed a way up over him. He kept hold of the woman and his gun, and shoved.

Suddenly something gave, and they were moving forward through water already knee-deep. It was deluging down from above, and there were figures up there against a faint square of sky, trying to fight their way up through the water, but it was forcing them back. Then the boat rolled and the deluge stopped. Mike got the woman's hand and clamped it onto his belt, then heaved himself up onto the companionway. Someone got hold of his gun and tried to pull him down by it. The gun was so long that it was fouling everything, and he nearly decided to let it go. Then he changed his mind. It was his livelihood, and he had brought it all the way from Genoa.

He wrenched the gun free and struggled up the ladder. There was someone above him; he lifted him by force clean out on deck, fell on top of him, rolled over, and reached back down the hatch for the woman. He got hold of her by the hair just as a wave smashed down onto them. It flattened him against the deck; if he hadn't had hold of the woman, it would have knocked her off the ladder. Someone screamed. The water dragged at him and drained away.

(Continued on Next Page)

ALONE

(Continued from Last Page)

Mike gasped and opened his eyes.

The deck slanted right down into the sea; there were no lights anywhere. The native beside him had disappeared. He had an impression of black mountains heaving against a sulphurous sky, of smashed rigging. Another wave crashed down on him like a ton weight, but he had the woman under the arms now and her weight anchored him.

As the wave hissed away, Mike pulled her out and got her down beside him on the slanting deck. More natives stumbled up out of the hatch. He was trying to remember where the lifeboats were. But the onslaught had been so quick the crew wouldn't have had a chance to launch them. Something was sticking into his belly. It was the gun, with the fins and mask attached to it. He picked it up and looked around for something that would float. There was a life belt against the deckhouse; he caught the gleam of it in the darkness.

He took the woman's arms and hooked them over the hatch. He waited for the ship to roll back and tried to run along the sloping deck. His plimsolls slipped. He hit the planking with a smack and began to slide.

Mike's mind cleared; beyond fear, coolly and carefully, he watched for the rail, preparing to check against it with his feet. Its silhouette stood out clearly a foot or two above the foam. Then something crashed down on top of him, and he was underwater again, tons of it, black and heavy and solid. It burned up into his sinuses, filling his brain with stars. Then the weight seemed to lift, and he lifted with it, up and up and up. Then surprisingly, there was air. He gulped at it, opened his eyes, and saw the dark shape of the ship. It was below him. Scared that he would be smashed against it, he began to swim.

He swam with the wind, angling past the wreck. He was lifted and flung like a cork toward the tilted deck. A native was clinging to the rail. Mike was dashed to within a foot of him, and sucked back. He saw the shine of water on the man's back, saw him hanging in the sudden vacuum; then the sea heaved up and tore the native loose. He couldn't see what happened to him. The next moment, Mike was clear of the stern, surrounded by blackness, unable to see or to gauge the waves, trying to time his breaths to coincide with his rises to the surface. There was so much water in the air, it was difficult to tell when he was under and when he wasn't.

Hopelessness welled up in him. He was being swept away from the wreck into the raging blackness of the Indian Ocean. The nearest land was Ceylon, maybe a hundred miles to the east. He knew that no boat had got clear of the ship and that his chances of being picked up were nil. But he made no attempt to fight his way back to the vessel. If he had he would have been drowned inside of a minute, and instinctively he knew it. He kept right on with the storm, out into the vastness and the darkness. And he was afraid.

He struggled in the whirl and plunge of the waters, sobbing for air, trying to think. But he couldn't think of anything. He felt that something was dragging him under and realized that it was the spear gun. The mask and fins strapped to it were cupping the water. It was natural for him to have the gun; he didn't wonder about it any more than a carpenter would wonder about having his hammer. Its five pounds of duralumin and steel were a part of him; now they were gripped in his right hand in a clutch that nothing short of death could have broken.

The familiarity of the gun steadied him. It never occurred to him to drop it. He hugged it in to his chest and kept swimming, and a process began in the back of his mind that suddenly became defiance. He was in the sea and he had the gun. It was the same sea—the sea that was his life, the sea that he dived and hunted in every day all day—whipped up now into a frenzy, but still the same sea. There were jokes in Colombo about his being half fish. Maybe he was. Well, this was his sea.

The idea grew, and the storm seemed to change; maybe it was really letting up—he didn't know, but he knew suddenly that he could beat it, the way a fighter can sometimes tell with his opponent the first moment he comes in against him. He could ride it out, and there would be a plane. They would be bound to send out a plane.

A big wave curled over on top of him from behind and buried him in darkness. He didn't fight it; he just lay in the water holding his breath. He felt himself falling. He was out of the back of it. He breathed until he felt the lift of the next one, gasped a lungful of air, and, as it broke over him, ripped off his pants and shoes. In the next wave he got rid of his shirt. He was naked now except for his belt and knife. He thought of trying to put his fins on, but he knew he could never make it.

He needed all the buoyancy he could get. With every gasp of air, he began to swallow some. He felt the bubbles form in his stomach and fought back the desire to belch them out again.

He wrestled the spear gun around to the small of his back and clipped the butt hook onto his belt, so that he had the use of both arms.

He could lie along the surface then. It was like body-surfing, only the waves weren't breaking, they were running. Instead of carrying him with them, they swept by underneath, lifting and dropping him, with a feet-to-head movement, so far and so fast he was jarred nearly senseless. The speed of the sea against the fins and mask drove the harpoon down between his legs and turned him over. He went under and nearly didn't come up.

He didn't want to jettison the gun, so he pulled around into the wind and faced the sea. The spray was wicked, but the movement was better. The gun behind him acted as a rudder.

Mike stayed that way, with the sea tearing past him, breaking through the waves, his mind stopped down to a pin point of concentration. Keep alive, he thought. Never mind where the wind is taking you. Just keep alive. Planes will scour the whole area. Ride it. Just ride it out. You've been in a spot before. How about Iwo Jima? What did you do then? Ride it out!

Wave after wave after wave came—rush, rush, rush. The sounds dabbled and cleared in his ears monotonously, and it was the roaring and fading of the sea shells, and then it was voices—loud, then soft. Then it was anesthesia, with great whirling lights and the punch-punch of watery fists in his eyes growing duller and, as time dragged by, imperceptible; he could feel nothing, and yet he knew it was still going on. There was movement and a sense of flying and sinking, but no feeling at all, nothing, and he got scared. He thought he was unconscious, that he was drowning. If only he could see something—anything—he would be able to tell!

He stared up at the sky blindly and twisted around, searching the darkness. Then behind him he saw a single, pale rent in the clouds. Dawn! Then he was conscious—the excitement, the relief of it. Mike twisted and began to swim toward the light but the spear gun fouled his legs instantly, and he went under.

As he sank down under the waves something touched him. Despite his numbness, he felt it distinctly against his thigh—rough and muscular and cold. The shock sobered him. He kicked convulsively to the surface.

The roughness and solidity had felt like a shark. He braced his muscles to resist the impact he thought must come. His softness and nakedness became huge in his mind as they do under machine-gun fire. He sucked in his belly, beat with his legs in an effort to get up above the sea. He imagined the great shape of the shark below him

negotiating the heaving water, waiting for a trough. A trough came. Mike dropped down into it feeling his belly vulnerable and unprotected. He clenched his teeth, eyes, fists, toes, and waited. Another wave came, another trough; again the tension, again nothing. Mike knew that he would soon exhaust himself. He must relax; if it came, it came.

But it didn't come. He relaxed gradually, prayed for light and snatched another look at the east. The clouds were lifting off the horizon, revealing a long ingot of yellow light.

Hurry, hurry, he thought. But it didn't. It spread very slowly until the sea emerged from grayness and revealed itself fully, rolling and vast and lonely; he wished he had never seen it.

No creature rose to attack him, and gradually he got a hold on himself. He could handle the waves better now that he could see them; he could time his breathing. It was no worse than swimming in a monsoon sea, and he had had plenty of that.

He kept watching for a boat or a raft, but in all that endless expanse, there was only him. What of the other passengers, the crew? he wondered. Surely he wasn't the only one?

Then suddenly the wind dropped. The effect was like deafness. The wind must have been diminishing for some time, and now suddenly there wasn't a breath, only the sea whishing and washing, but no spray and no thunder against his eardrums. Relief came to him and hope, and then something more arrogant—conquest. He had outlived the wind. But the loneliness was back, worse than before. The sea stretched all around, endless and inescapable.

At last, the sun itself broke the ocean's rim, blazing a trail of weaving fire across the sea. The trail elongated and merged with the sky. The waves marched on Mike now in pink-gold echelons.

He felt all beaten up. Snap out of it, he thought, remembering the shark. Soon the fish would start feeding, and killer fish got very nasty in the early morning.

He got the gun unclipped and, lying with his face in the water, unstrapped the fins and mask. He got the fins on, sinking slowly down as he fitted them onto his feet. He came up quickly, very quickly, and got the snorkel up out of the water. He peered at the mask bleakly. The glass was intact. Thank God, he thought. He emptied the mask out, spat on the glass to stop it from clouding when he breathed, rinsed it out again, pulled it on and took a quick look down into the water. He did not know why he was so jumpy; there was nothing down there—only a few small

shapes in the grayness. There wasn't enough light yet to see deep.

The harpoon was lashed against the barrel of the spear gun with the steel line. Lying on his face again but breathing now through the snorkel—interruptedly, because the high sea kept filling it—Mike unwound the line and got the harpoon into the projector. He wrestled with the propulsion unit for nearly a minute before he managed to compress the heavy, double spring. As he floated to the surface and lay there, gasping weakly, he knew that that was the last time he would have the strength to do that. One shot—that was all he had.

The undersea dawned slowly beneath him. The rising sun raved down through the plankton particles in bewildering, shifting patterns. He saw numerous fish, all fairly well down and shadowy still. It looked unbelievably deep. Something seemed to open up in his diaphragm and let the draught in. There would be fish out here he didn't know about—predatory giants as different from their reef relations as lions from alley cats.

The farther the sun got down into the water, the more fish he could see. Five, six, seven fathoms—there were fish and more fish, the deepest gleaming in the blue-blackness like sunken coins. Even as he watched, the pulse of their actions seemed to quicken. A pack of big bluefish cut into a shoal of mackerel four fathoms below him. The mackerel raced off in a tight, terrified wedge. It had started.

The whole of the visible undersea seemed to speed up like a film. The fish became no more than streaks of color in the ice-blue upper fathoms, tracing firework patterns of fear and hunger. Jacks and bonitos were everywhere, sometimes combining to tear with snapping jaws into a big shoal, then turning on one another to fight for the spoils.

The water became filled with little puffs of blood. The smell of it seemed to excite the fish to even greater ferocity and fear. This battle period lasted, normally, half an hour in the morning and the same again at nightfall. Mike wished to hell they would stop. Barracuda and sharks went crazy at feeding time; they seemed to lose all their normal fear of noise and hostile action and behaved much more in accordance with their reputation.

Suddenly three six-foot torpedo-like shapes shot up out of the depths toward him. He had barely time to pull himself together before they had veered off and beaten away into the blueness. They were gun metal and silver, and shaped like gigantic mackerel—tuna. Hell, he was slow! He realized then what a sitting target he was. Lucky that was all they had been;

his reflexes were all to pieces from the storm.

Almost at once another big shape appeared below him, followed by several more. They moved through the water with a sickening rush, the big one in front working its jaw like a buzz saw. They were blue shark, with pectorals like bomb fins, and paper-knife noses. Mike didn't have time to stir a muscle. They swept by underneath him, the big one spitting out fragments of fish into the water, which were snapped up by the ones behind. They were gone in an instant, and he was just letting go his breath when suddenly they were back.

It was as evil a procession as one could ever wish not to see: three pilot fish were above and slightly in front, their stripes fairly screaming danger; behind them came a ten-foot chunk of barrel-like blue muscle and, bringing up the rear, four half-grown versions of the same creature.

The sharks surged by, slamming their jaws, and disappeared into the dimness. Mike lay in the water and waited; but this time they didn't come back.

He sucked in a deep breath. It had been a matron shark airing the kids. If a plane didn't hurry up and come soon, he thought . . .

Presently, the tempo of the under-water slowed down. Breakfast was over. Mike relaxed, flattened on the surface, beating automatically with his fins, rising and falling steadily, saving his strength. The sun climbed slowly up the sky. He was really tired now, tired and thirsty. He estimated that he had been in the water for seven hours. During a full day's spearing he sometimes kept going for eight without touching down. But that was in a calm sea and in sight of land. Land, he thought longingly, with the elephants plowing the coconut groves along by the sea.

It must have been about eleven o'clock when he heard the plane. He hoisted himself as far up in the water as he could and ripped off his mask. He saw it at once. It was a biplane. It was pattering over the sea about a mile to the north, with its nose high, obviously on the lookout for something. Mike waved his mask frantically, shouted and splashed about in the water, but it kept going steadily, and eventually disappeared over the horizon.

It'll be back, he thought wildly. It's looking for the wreck. It's got to come back! He kept the mask off, forgetting the danger, forgetting everything but that up there was a fellow human being and that he must make him see him. His heart began to thump, and a

(Continued on Next Page)

ALONE

(Continued from Last Page)

great deadness spread outward from his diaphragm into his limbs.

The waves lifted and dropped him. From the crest of each he craned toward the horizon, open-mouthed, hoping to hear the engine. An especially big wave heaved up in front of him. He glanced at it, gauging it automatically, then stared at it, shocked. Encased in it, as though in green ice, was a shark. It was drifting sideways in the wave, its dorsal fin lazily breaking the crest.

In a moment it would be on top of him. He threshed about with his fins to scare it, at the same time fumbling with the mask. He got it on—half filled with water—cleared it out and dived.

The creature had gone. He twisted around under the water. It was behind him. It was a heavily mottled shark, seven or eight feet long. It had seen him, all right, and seemed idly curious. With a careless flick of its big tail, it nosed to within six feet of him.

Mike had one idea in mind, that was to get rid of it. Spreading his arms and legs, he hooted into the mask.

The shark's languor left it instantly. With a bewilderingly swift movement, it turned and shot away at right angles; stopped, turned and hung there, staring at Mike with its little, catlike eyes.

He cursed. These pelagic sharks weren't like the reef ones. That would have been enough even for a blackfin. He raised one ear out of the water and listened for the plane. It was coming! Its clatter reached him clearly over the waves. He took another look at the shark. Did he dare ignore it? The shark made a movement.

God! Mike thought. Not now. It can't come at me now!

But that was just what it did. He had to face it. He headed straight for it, desperation lent him strength.

Uncertainly the shark checked its advance with its pectorals, Mike kept right on and when he was a dozen feet away from the shark he blew a burst of bubbles at it through his snorkel. The big mottled body jackknifed and fled, thudding the water with its tail. Mike hit the surface and snatched off the mask all in one movement. The roar of the plane spanked his ears like a thunderclap. It was right overhead. He tried to shout, but he hadn't any air. He gasped to fill his lungs, took in some water, and choked.

The blind belly of the plane passed over him. It was an old Gladiator, with fixed undercarriage. He managed to get the gun up and wagged the duralumin in the sunlight, but the plane just pulled away steadily across the

water. He made a noise at last, something between a gasp and a scream. It just had to see him! Weird sounds dragged from his throat as he watched the machine diminish, and heard the engine grow fainter, fainter, then merge with the rush of the sea.

He was alone. He subsided, exhausted, into the waves, lying there weak and uncaring, letting the water drain into his parted mouth, letting its green weight close over him.

Oh, God, he thought. Oh, God, oh, God, oh, God.

The sun had swung over behind him and was sinking slowly toward the sea. He had been swimming since morning, weakly but steadily. After the plane, he had lain in the water a while, then some inward strength had got hold of him, turned him toward the eastern horizon, and forced his limbs to move.

Everything that was reasonable in him resisted. If another plane or a ship were to come, it would come. Swimming wouldn't help. And if it didn't come the sharks would. Land, allowing the maximum for drift, was about seventy miles away, and he had never swam more than twenty in his life.

But the stubborn spirit in him did not listen. It only knew that there was land over there below the eastern rim, solid and sweet-smelling and green, and that here there was only death. It drew him through the water—desperately.

His thighs were cramping a little, and he had chafe from the fins across the insteps of both feet. When they began to bleed, the sharks would pick up his trail, and yet he kept on, at intervals rolling his head up—sideways, to save energy—to look along the sea and at the sky. They were clear and empty and endless, and the light was glorious. He felt small in so much emptiness.

From his mouth and his throat right down to his stomach, he was puckered dry with brine. There wasn't a bead of moisture left in him. He wouldn't last the day. Sea creatures like Halloween masks came and went, appearing suddenly an inch from his face, then darting away. All day it had been the same, and he had let them come, grateful for their company.

Now, suddenly he shortened the gun in his hand, jabbed at one with the protruding spear and transfixed it. He trapped its fin movements with his fingers, glancing round instinctively. Experience had taught him that often when you speared a fish, sharks, drawn by the sound of finny panic in the water, jumped you so fast they might have been fired at you.

He waited. Nothing happened. Without any conscious reasoning, Mike turned on his back and wrenched

the fish off the barb, pushed back the mask and squeezed the lymphatic juices from its wound into his mouth. They were rank and oily and mingled with blood, but they were free from salt, and he wondered vaguely how he had known they would be.

When he had squeezed the fish dry, he threw it as far from him as possible and spiked another. He caught six; then, using his knife, cut the last one, a sea bream, into strips and ate it raw.

He felt strange and defiant, and when he sprawled back under the water, he felt no nausea but a sort of amazement. He would get stronger; he could keep alive for days like this. Then reason reasserted itself. Not without sleep, it said. His eyelids felt heavy at the thought of it. His legs stopped beating. The water was soft and warm. The movement of the waves had subsided to a soothing rhythm. His head sank.

Suddenly his eyes flicked open, and he was staring along the underglow of his own stomach. A yard from his legs was the bluish head of a shark.

He slapped the water with both fins and got himself around somehow. The solid body flicked sideways and circled lazily around him. It was more than twice his length. Then somehow there was another, rock-steady in the water and growing toward him. Mike knew he couldn't fight them. He hadn't the strength. They circled around him, puzzled by his reluctance to escape.

Mike watched them, heavy-eyed; watched a third one come—smaller, this one, with a newtlike head and dappled like a newt—a tiger shark.

There was always the gun. It was his ace, he thought, admitting to himself now what had been in the back of his mind all along. He would put it under his chin and squeeze the trigger with his bare heels.

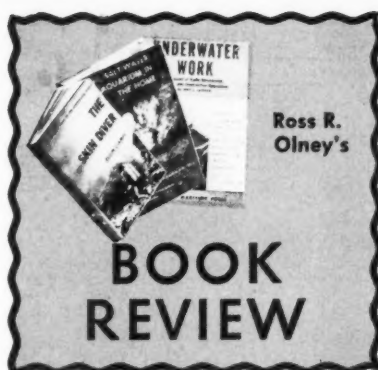
Now, he thought. Before it's too late. The deliberate circles were narrowing steadily. He lay in the water wondering vaguely why he didn't act. There seemed to be five of them now, then six.

The undersea was darkening fast. Feeding time, he thought. They would go crazy, and it would be too late to do anything. But still he lay in the water. Deep down in him there was something that refused to die. Coward! he said angrily.

Then he was panning the gun carefully, aiming at the tiger, centering on one eye. And he knew why: it was half-grown and softer-skinned than the others, and he had to cripple it. It came in close. At seven feet he let the shark have it.

There was the sound of slithering steel and a blur and a jolt. The gun

(Continued on Page 66)



BOOK REVIEW

LIVING FISHES OF THE WORLD

By

Dr. Earl S. Herald

IF THE one best feature of "Living Fishes of the World" were to be picked, it would doubtless be the extraordinarily rich selec-

tion of pictures. Page after page of full, beautiful color plates of rare and strange fish in all their splendor. Teeming and endlessly varied, the life in the oceans and lakes of the world are covered from giant sea creatures to tiny minnows, each with its own particular beauty. Included in the 300 illustrations are pictures of species and activities never before recorded.

Around the illustrations, Dr. Earl S. Herald, Curator of Aquatic Biology at the California Academy of Science's famous Steinhart Aquarium, has written fascinating accounts of the drama, danger and humor in the underwater world Dr. Herald is eminently qualified to discuss from the different attack habits of sharks to the grace and gentleness of the friendly little seahorse. As author of many technical papers in the field of ichthyology and leader of marine expeditions, Dr. Herald has traveled all over the world in pursuit of knowledge. For nine years he has been program host for a weekly syndicated television series "Science in Action." He is also a trustee of the George Vanderbilt Foundation at Stanford University.

In "Living Fishes of the World" the first section is devoted to sharks, always of interest to divers. Each different type of shark is discussed with a complete description and any peculiarities relative to that species. Possibilities of attacking a swimmer or diver, normal food, breeding characteristics and habitat are revealed. At the end of this section is a page on the latest known facts on shark attacks followed by a discussion of the different types of shark repellents. The photographs in this part of the book should make shark identification much simpler for the diver.

Next is skates and rays and as the book progresses it leads the reader through just what its title implies . . . "Living Fishes of the World."

Here are thousands of little-known and almost incredible facts. Dr. Herald writes of fishes that lay their eggs out of water and then splash them until they hatch, others that locate their food with a form of radar, fishes with spines more deadly than a rattlesnake's fangs, fishes that shoot their food out of the air overhead and fishes that "fish" for other fishes with a tiny fishing pole and bait.

Using the results of his latest studies, Dr. Herald has written of such basic matters as habits, range, feeding and life cycles. Beyond that, he deals with such things as the economic value of many species, their edibility, the favorite species of sportfishermen and divers, the chain of dependence in which the larger feed on the smaller and many other interesting facts. One section of the book is devoted to tropical fish fanciers with magnificent accompanying color photos.

Among the sixty-odd photographers represented in "Living Fishes of the World" are such men as Conrad Limbaugh, Fritz Goro, Gene Wolfsheimer, Stan Wayman, Douglas P. Wilson and Ron Church.

A glossary of terms regarding marine life is included with diagrams and cutaway views of common fishes for better illustration.

The work and research that went into "Living Fishes of the World" is obvious to anyone opening its pages. And it is research presented in an entertaining and informative way, written by a scientist but for the average underwater enthusiast.

Although slightly more expensive than the average book, "Living Fishes of the World" should have its place on the bookshelf of anyone interested in the lakes and oceans of the world. Published by Doubleday and Co., Inc., it is available through SDM's Underwater Bookshelf for \$12.50.

PHOTOGRAPHERS!! BEACH BEAUTIES!!

IT'S TIME AGAIN TO START THE SEARCH FOR

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1. Submit a photograph of the loveliest girl you know. She must be clad in bathing suit or diving gear and the picture must be at the beach or water's edge.
2. Submitted photo must be no smaller than 5 inches by 7 inches and in black and white. No smaller picture will be considered.
3. A release—signed by the girl in the photo submitted—must accompany each entry, and her complete name and address.
4. Submit brief data regarding the girl's measurements, interests, activities and opinion of skin diving. Age mention optional.

5. Credit photographer fully, and give camera data.
6. All entries must be received in SKIN DIVER MAGAZINE offices no later than August 15, 1961.
7. The winning contestant's photograph will be announced and reproduced in the October, 1961, issue of SDM.
8. Winning contestant will receive, in addition to photo in the magazine, a crisp \$100 bill by registered mail.
9. Photographs must be addressed to: "Miss International Beach Temptress Contest," Skin Diver Magazine, Lynwood, California.

Another photo of
Last Year's Winner



Margaret Brummett
(Photo by Bill Crawford)

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Pacific Coast Skin Diving Show

Interested response from Hollywood to Minneapolis has followed announcement of the 1961 Pacific Coast Skin Diving Show to be held in August at Santa Monica's Civic Auditorium, Harold Dunnigan, co-producer of the show, has reported.

Entertainment personalities Bill Barrud, Col. John D. Craig, Jack Linkletter, and Jeremy Slate will be among the participants with others to be added subsequently, Dunnigan said.

Television star and noted aqua-athlete Zale Perry has been chosen to reign as Queen of the Show, scheduled for August 4, 5, and 6.

"The cooperation and enthusiasm of these celebrities, associated in motion pictures and television with skin diving, shows that they have more than a commercial interest in water sports," Dunnigan said. "We're very proud that they're giving their time and talents to the improvement and appreciation of diving."

In addition to displays of manufacturers' current and experimental gear and devices, a special "undersea museum" will be featured at the show. Paintings and photographs depicting undersea scenes, recovered artifacts and unusual salvaged items, and early diving equipment are to be exhibited under one roof for the first time.

Dunnigan said that inquiries from charter exhibitors and individuals have been received from throughout California, eastern states, and Europe, since announcement of the project in mid-May. Headquarters are at Box 100, Venice, Calif.

TECHNICAL FACTS

W. LEE COZAD
ROBERT GIVEN

Technifacts is a new feature and will be used in SDM as readers dictate. If you have a technical or scientific problem or question on oceanography or any related field, send it to Technifacts, c/o Skin Diver Magazine, Box 111, Lynwood, California.

Q. I'm presently working on an article on Bat Rays. Where and when is the best time to photograph these creatures underwater?
—R. H., University of Arizona, Tucson, Ariz.

A. The bat stingray, *holorhinus californicus*, is known to migrate to shallow bays and estuaries during the months of June and July in order to drop its young. The female is usually the larger of the two and so it would appear that the herd is comprised of entirely females while in the bays. They are frequently observed in San Francisco Bay, in and near Anacapa Island, and along the shallow bays off Baja, California, during these months.

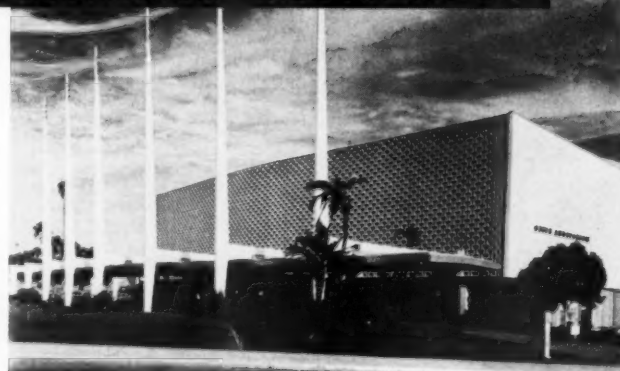
PACIFIC COAST SKIN DIVING SHOW

SANTA MONICA CIVIC AUDITORIUM AUGUST 4, 5 & 6

Alert manufacturers such as: Cornelius Compressor Co., Dolphin Engineering, Healthways, International Communications Corp., Phantom Products, Prop Guard, Reid Marine, Sportsways, Underwater Electronics Corp., U. S. Divers, recognized the importance of this show and are now preparing their exhibits. This show presents a new means for the interested public—as well as the experienced diver—to see so much of the equipment and activities of the underwater world.

Some of the many features of the show include: World's Largest Exhibit of Skin Diving Equipment, Special Dealers and Distributors Preview, Submarine and Underwater Propulsion Display, Photographic and Art Gallery, Underwater Films, Beauty Contest—"Miss Skin Diver of 1961", Underwater Fashion Shows.

World-famous Zale Parry, as Show Queen, will introduce prominent celebrities including Jack Linkletter, Bill Burrud, Col. John D. Craig, Jeremy Slate, Don and George Brauer.



SHOW SITE — Santa Monica Civic Auditorium, selected as the site of the 1961 Pacific Coast Skin Diving Show, August 4, 5, and 6. Commercial and educational exhibits, entertainment, and special attractions are scheduled for the three-day water sports exhibition.

Mr. Manufacturer or Your Dealer Rep.: Obtain complete details on how you can participate in this show. Call or write today for a complete brochure outlining display requirements, rental rates, and available display areas.

PACIFIC COAST SKIN DIVING SHOW

BOX 100

VENICE, CALIFORNIA

EXbrook 3-5633

Q. Once on a calm day near Del Mar, California, I noticed large bubbles of air break the surface near our boat, and then an oil slick appeared around the bubble. We wanted to dive and investigate but we were in approximately 300 feet of water. Were these bubbles the exhalation of an animal or what?—D.S.W., El Monte, Calif.

A. Evidently you and your diving companions were over an oil and gas area, known to occur along the coast off Southern California in several localities. Many of these areas have been tapped by oil companies but there are still many areas that are too deep to drill. This is more than likely the case in this area. Hydrographic charts many times will show these oil and gas leaks from the sediments.

Q. I have heard that the common sculpin, *Scorpaena guttata*, is poisonous. I have eaten this fish and found it to be excellent food, but certainly not poisonous. Can you shed some light on the mystery?—D.M.W., Pismo Beach, Calif.

A. The fish you speak of, *Scorpaena guttata*, is called a sculpin, although it is not a true sculpin but belongs to the family Scorpaenidae, the scorpion fishes. Also in this family is the dreaded stone-fish, found in more tropical waters, (Great Barrier Reef, Indo-Pacific, etc.) whose dorsal fin spines inflict deadly, many times fatal, wounds. The spines along the back of the common sculpin are also the poisonous part of this fish, not the flesh. Fishermen can attest to the painful swelling that these spines cause. A true sculpin, of the family Cottidae, is called the Caberzone, *Scorpaenichthys marmoratus*. It looks a little like the scorpionfish, and inhabits the same areas, but it is

the roe (eggs) of these that is thought to be poisonous, not the spines. They are more brightly colored and their flesh has a bluish tinge. Also a very good food fish.

Q. I recently bought an inexpensive wet suit and was told by the salesman that one of the advantages of this suit was that with the new type rubber, I didn't need to wash it with fresh water after each dive. Being new at diving, I took his word for it but after two or three dives without washing, I began to get sores on my groin area and under my arms. Could the suit have anything to do with this?—B.S.D., Topeka, Kansas.

A. In spite of the supposed antiseptic value of sea water, the combination of old seawater residue and human skin bacteria creates an excellent growth medium for these micro-organisms. The human skin has on it many such organisms, but has a natural immunity to most of them except when the skin is broken. When you wear your suit, these bacteria will stay on it unless washed off. They find a dark, warm environment to grow and flourish, when you just wad your suit up and throw it in the corner. Next time a good crop of these bacteria, the same kind that cause other skin eruptions, are still there, ready to attack your skin. Such a large concentration may be too much for your natural skin immunity to handle and the tender areas you mention may be first attacked. So for health, as well as just plain aesthetic value, it is good to wash any suit well after wearing, and make sure both sides get fairly dry. A little extra time before you put it away, taken to powder it, will preserve the rubber and the suit will also be all powdered for the next time.

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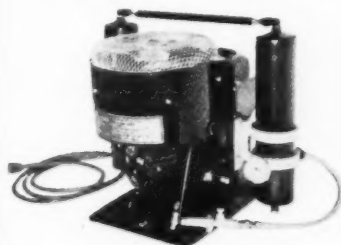
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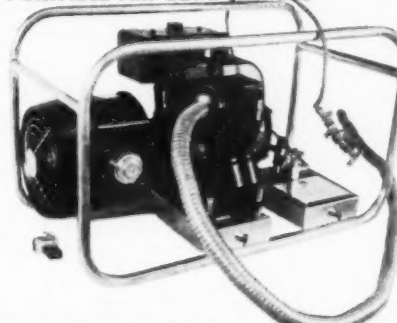
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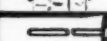
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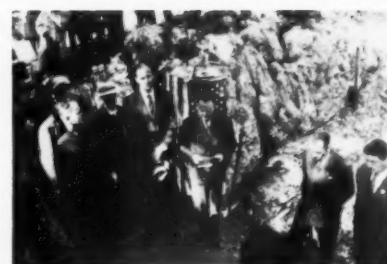
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Memory of an Underseaman By JAMES DUGAN

CASSIS, FRANCE—
Along the face of a limestone cliff walks a slow procession. In bright spring sunshine people walk along a ledge a hundred feet above a wild inlet of the blue Mediterranean—*les calanques de Cassis*—toward a rendezvous in the memory of an American few of them ever saw. They are paying respect to Conrad Limbaugh, chief diver of Scripps Institution of Oceanography at La Jolla, California, who was lost the year before in a submarine river deep under these white rocks.

Among the marchers is the Prefect of the Department of Var, who would be a State Governor in the United States; two French admirals, a young general, three mayors, and the diving leaders of France, headed by Eli Ferrat, President of the National Underwater Federation. Among them is a small lithe man with a seamed face and the profile of a Sioux—Frédéric Dumas, the first of the menfish. With him is François Clouzot of the World Underwater Federation; Armand Davso, the veteran *Calypso* diver; André Laban, director of the French Undersea Research Centre and builder of the Diving Saucer; and Commandant Jean Alinat, representing Captain Cousteau who is out of the country. One of the two Americans present is the tall U. S. Consul-General in Marseille, John Lucien Kuhn.

On the face of the lonely fiord walk old ladies in high-heeled shoes and patriarchs in black—seventy people coming to honor an American exploring scientist who dared the hidden places of the earth. Conrad Limbaugh journeyed far to tell youngsters about the privileges and rewards of diving. He founded and led the first oceanographic diving team in America.

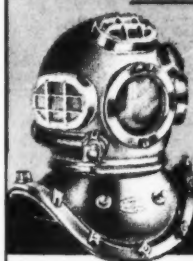
The procession turns into a small natural amphitheatre, carpeted with pine needles, surrounded by rock balconies, and in the center a yawning pit dropping to the subterranean river of fate. By the pit mouth there is a prow of rock draped with the Stars and Stripes. The French divers speak of their brother lost in the dark beneath. The pines bend in seabreeze and shadows play over the silent assembly. Daisies and dandelions are out and on the rocks below the waterline there is a bloom of algae, anemones and sea urchins. The sea is laughing in the cove. What crunching galley prows and waddling merchant sail came into this haven in ages before record?

The American Consul pulls away the flag, revealing a bronze plate:

*A La Memoire Du Savant Americain
CONRAD LIMBAUGH
Mort Tragiquement au Cours D'une
Audacieuse Plongee Dans La
Riviere Souterraine de
Cassis Port-Miou le 20 Mars 1960
Club Alpin Francais
Section De Provence
Federation Francaise D'Etudes
Et De Sports Sous-Marins*

The Consul speaks in French about a bond between the sister republics of France

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and the United States, a sympathy strangely renewed today among the new underwater breed. A Pastor prays. All the people are uncovered. For a long moment only the sea speaks her everlasting verses to the rocks.

The pilgrims file back along the ledge to the 1626 Town Hall of Cassis, which is dressed in the brilliant red, white and blue banners of the two republics. Mayor Agostini leads the way into a white-washed vault of the Mairie and offers a *vin d'honneur*. The white wine of Var and the pastis of Marseille is taken in good heart. New friendships begin.

No stranger is lost whose spirit dwells in a morning like this in another land. The bronze left in the calanques will gain a green patina as the years pass, becoming more like the pines. It will seem a natural growth on the rocks, like the coralled hardware of an ancient argosy sunk in the sea below. No motorist will see the sign of Conrad Limbaugh placed along the unending trail of human curiosity. It belongs to hikers, campers and lovers, who will read the legend on the edge of the pit:

To the memory of the American scholar Conrad Limbaugh tragically killed during a daring dive in the underground river of Cassis Portmieu 20 March 1960.

Intercollegiate Spearfishing Tournament

The first Eastern Intercollegiate Spearfishing Tournament was held recently at Playland, Rye, New York. Despite poor weather conditions teams were present from The United States Military Academy, United States Merchant Marine Academy, Rutgers University, Rhode Island University, University of Hartford, Trenton College, and Hofstra College.

The weather for three days previous to the meet did anything but help conditions—northeast winds had caused murky water and poor visibility for the spearfishermen, but these conditions did not in any way dampen their enthusiasm.

The teams entered the water at noon just at high slack tide, a favorable condition for the divers. The two large breakwaters and the long Playland Beach Pier were worked for three hours.

Alfred J. Lesperance, University of Hartford, took individual honors for the largest fish speared. Lesperance represented Connecticut at the National Spearfishing Tournament, held in California last August.

The Hofstra College team (Edward C. Brown, Harold Orr, James R. Collins and Frank Carbone) took team honors, for most fish speared.

Total pounds honors went to the United States Marine Academy team (Russell McVay, Hubert Hogan, Gary Swan, B. R. Jackson and Les Johnson).

Final standings of other teams participating were:

United States Military Academy, 47 points; Rhode Island University, 44 points; Rutgers University, 40 points.

James Hall, Poughkeepsie, N. Y., was in charge of water safety operations. Safety patrol launches, with lung divers aboard, cruised over the diving area, assuring divers of immediate aid if needed.

Nemrod trophies were awarded by The Seamless Rubber Company of New Haven, Connecticut.

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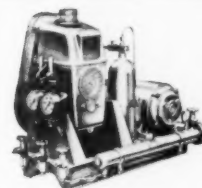


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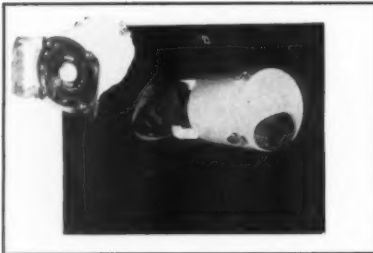
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NEW PRODUCTS has been expanded for July—at the peak of the diving season—to show more of the newer and better products developed for the skin diver.

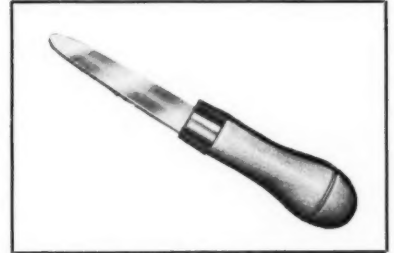
SKIN DIVER NEW



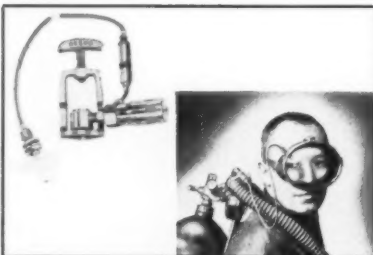
DIVER'S SONAR—Completely self-contained and capable of operation at 200 foot depth. Supersonic echos are displayed to show distance to objects over 100 feet away, even in complete darkness. The narrow beam spots other divers in the water, sunken wrecks, bodies, cars, fish, etc. 7" diameter by 8" long, weighs 11 lb. in air, slightly buoyant in water. Price \$195, from Raymond Development Co., Box 333, Watertown 72, Mass.



NEW SKIN DIVER LEOTARD—A new type of women's rubber bathing suit accessory. It can be used for swimming, (use two for best performance), dance or exercise suit, skin diver lining, reducing aid, and many other uses. Made of pure crepe rubber in red only. In small, medium, or large, one garment is \$8.00 (two for \$14.00, three for \$18.00, four for \$20.00). Available from Mariner Wear of Rhode Island, 6 Hearthwood Dr., Barrington, R. I.



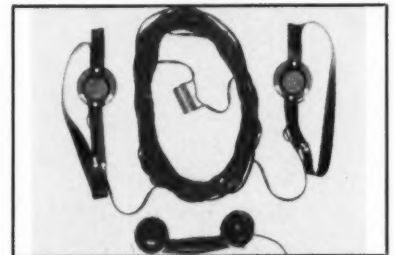
ALL PURPOSE SHELLFISH KNIFE—This new rust-resistant knife, patterned after an old New England design, has a six-inch blade and hardwood handle. Ideal for opening clams, quohogs, oysters and shellfish of all types. Widely used as an auxiliary knife in the skin divers kit. Inexpensive and versatile, it is priced at only \$2.95. The knife is available from Seacraft Industries, 3A Church Street, Wilmington, Massachusetts.



DESCO "SAF-T-EYE"—A warning light that eliminates guesswork as to the amount of air reserve a diver has remaining, fits in any mask. No pressure gauge to watch, no restriction in breathing. Also check cylinder pressure. In beautiful compact micrometer style unit of stainless steel, the "Saf-T-Eye" is powered by ordinary pen light self-energizing battery. For further information write: DESCO, 212 N. Broadway, Milwaukee, Wisconsin.



PAKET SOAP—Here's a good idea for divers tired of finding their soap crushed or wet under their diving gear. Each unbreakable tube of toilet soap contains 40-50 washings, cannot leak, and requires no care in packing. Ideal for auto travel, handbag, or any kind of an outing. It dispenses easily, is lightweight, mild and fragrant. For more information write: Paket Sales Corporation, 9022 S. Baltimore, Chicago, Illinois.



BADGER WATERPHONE—A complete communications unit for Scuba consists of 100 ft. wire, battery, and two phone sets, each containing throat mike and earphone—everything completely waterproof. Talk diver to diver, diver to tender with this newly-developed underwater communications system. Priced at \$24.95 complete, an accessory handset for tender is available at \$5.95. For further information write the Badger Products Co., Waterford, Wis.



DACOR SAFETY FLOAT—Ideal for skin divers, boaters, beginning swimmers, for protection in emergency, when tired, for lifesaving, in-on-under water. Operates with ordinary low cost, easy to replace Seltzer cartridge. Trigger action level impels piercing pin for instant inflation. Bleeder hole in cap. When unscrewed, allows slow deflation. In black and yellow, single float \$7.95, double float \$12.95. Dacor Corp., P. O. Box 551, Evanston, Ill.



COMPETITION MASK—This new Swimmer mask was specifically designed for the expert skin diver to give him minimum displacement, easier equalization, more efficient clearing with very limited buoyancy for easier, faster diving. Compact for scuba diving and competitive spearfishing. Soft foam neoprene provides absolute seal with no facial fatigue. Made of neoprene for longer wear. Naval brass rim and fittings. In black or yellow at \$6.95.

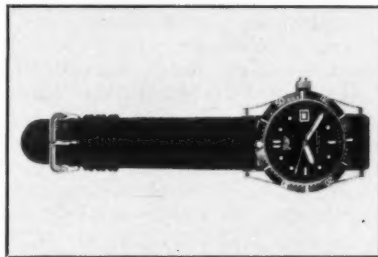


HULL GARD TOTE TANKS—With 12 to 24 gallon capacities, they are lead-coated heavy gauge steel. Interior baffle plates add strength and inhibit surging, slopping. Accessory kits contain non-sparking brass vent fittings, chrome-plated brass through-hull-vent fitting with flame arrestor, deck plate fill fitting, neoprene fill and vent hoses, and stainless steel fill and vent hose clamps. Products of Parish Pressed Steel Div., Dana Corporation, Reading, Pa.

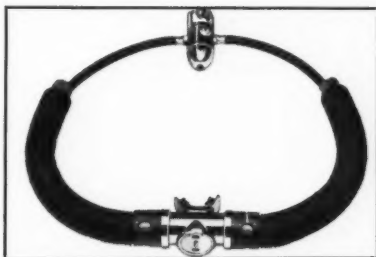
NEW PRODUCTS



NEW PRODUCTS is a regular editorial feature and is not comprised of paid advertising. See your local dealer, or write to the firms mentioned for additional information.



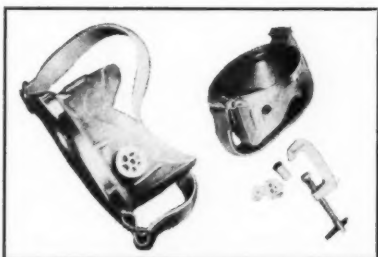
VOIT SKIN DIVING WATCH—Stainless steel case houses a 17 jewel, anti-magnetic movement of Incabloc construction. Waterproof to a depth of 660 feet, the Voit watch is completely automatic including the date indicator on the face. An outside, luminous bezel indicates elapsed diving time. Fully guaranteed for one year, Voit Rubber Co., 1600 East 25th St., Los Angeles, Calif., will renew guarantee for the same period. Retail for \$75.00.



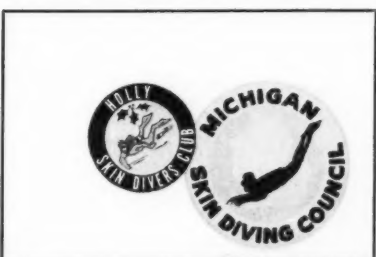
DEMONE MARK II REGULATOR—Exhausts air at the back of the diver's head with automatic valves built into the exhaust hoses activated by pressure differential to clear exhaust channels. Manufacturer, Demone Mfg. Co., Oak Lawn, Illinois, claims that this new regulator combines all the advantages of single hose regulation and the comforts of a miniature mouth-piece assembly. Metal parts are chrome plated brass and stainless steel.



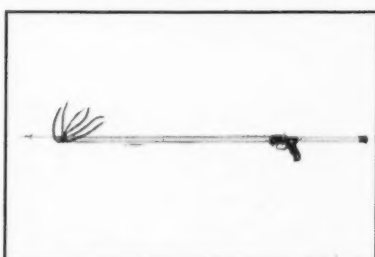
AUTOMATIC DECOMPRESSION METER—Precision instrument functions automatically, continuously registering and retaining the memory of repetitive and multiple depth dives, calculating and indicating depth and time for decompression appropriate for each dive. Reproduces the body physiology by duplicating the rate at which the nitrogen goes into and out of solution in the blood stream. Write: Healthways, 3669 7th Ave., Los Angeles 18, Calif.



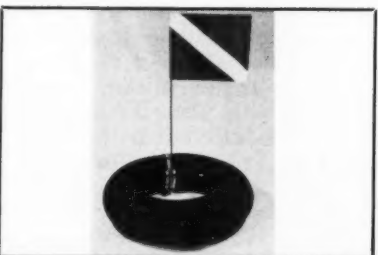
U. S. DIVERS PURGE VALVE—Now available for attachment to any conventional mask. Molded from high impact plastic, valve case is impervious to environmental conditions, shock, etc. Neoprene return valve allows evacuation of water from inside mask with normal exhalation technique. In kit form, the valve can be mounted in five minutes to the rubber skirt of any conventional mask. Price \$1.95, at all dive shops.



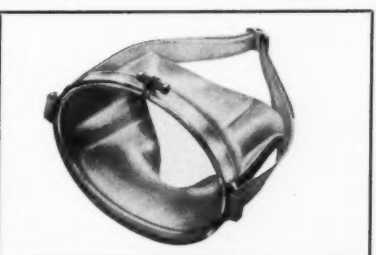
WET SUIT CLUB EMBLEMS—Now divers can have club emblems on their wet suits just as they wear embroidered emblems on their jackets. New rubber patch club emblems reproductions are easily applied, according to the manufacturer, Bob Slayman, 3103 Ferris, Royal Oak, Michigan. Apply cement to both surfaces, allow to air dry and then bring the cemented surfaces together. Available in vivid colors with exact reproduction guaranteed.



COMPETITION GUN—A new, big gun designed for top spearfishing contests, manufactured by Swimaster, 905 East 59th St., Los Angeles 1, California. Has heavy duty barrel, three powerful slings, open muzzle and balancing bar to provide the power and control required under competitive conditions. Shaft, "twin-spinner" barb and all moving parts are made of stainless steel. Slings are of black surgical latex rubber. The Competition Gun is priced at \$32.50.



DE WAN DIVERS' FLOAT BRACKET—With flag, fits all auto inner tubes. All-aluminum flagstaff carries regulation 12"x15" Divers Flag. Flag remains unfurled at all times; unique design permits flag to swivel 360° without wrapping around flagstaff. Staff is adjustable and can be installed or removed in just a few seconds, comes complete with bracket, flagstaff, and flag for \$5.50 postpaid from DeWan Mfg. Co., Box 2606 Milwaukee 14, Wis.



SPORT DIVER MASK—Designed for divers requiring a smaller mask, the Sport Diver is ideal for women and children having difficulty finding a mask that provides perfect seal. Streamlined in appearance, the Sport Diver is made of divers' black neoprene, blue, yellow and mahogany gum rubber with rugged stainless steel fittings and tempered lens. Priced from \$4.95, the mask is manufactured by Swimaster, 905 East 59th Street, Los Angeles 1, California.



VOIT SKIN DIVING BOOTS—a new addition to Voit Rubber Corp.'s growing line of quality diving equipment, these boots are made of blue foam rubber, are fully waterproof and insulated to protect against injuries and numbness. High top design and a semi-firm bottom add even more comfort and a better fit. Full range of shoe sizes from 5 to 13. Price for the SBD-1 skin diving boots is \$4.95. Write to the manufacturer for more information.



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KILLER WHALE

(Continued from Page 37)

some equipment across some loose ice, he spotted a herd of eight killer.

So mesmerized was he at the sight of the orcas that by the time he realized the danger their presence alluded they were at him. It was a race of foot and fluke, and the photographer retreated to an ice floe, a large one, where he figured he was safe. But he wasn't, for he declared that while he was standing there, the mightiest of the pack, the bull, came up under the floe and tried to bounce him off.

Before he lost his balance, the Britisher left no tracks in getting to a more solid footing. The killers circled for awhile, actually rearing their heads from the sea and watching him, and then departed for depths unknown.

The photographer's story is partly substantiated (not that any of it was fabricated) in the experience of Major Gavin Maxwell, a whale hunter of the hand-thrown harpoon school. He has seen the orca actually ram its head out of the water to watch its quarry.

"It was as though those eyes were saying that cetaceans are superior to all animals except man, and far superior to the anthropoid apes, in the development and extensive convolutions of the brain," Maxwell said.

There isn't an ocean in the world that doesn't host the killer whale, but mainly the greatest number of orcas may be found in areas where hunting is best for them. The White, Kara, and Okhotsk Seas are exceedingly good grounds to find killers because here the Beluga whale, which attains a hundred feet in length, resides.

The Beluga whale travels as far south as the St. Lawrence River. It is circum-polar. But wherever it goes, so pursues the packs of orcas. The Beluga is totally defenseless against the attack of the killer, and it is nothing, except for sheer sadistic joy, for an orca herd to swim among belugas and kill every one of them.

If the range of the grampus is world wide, it is no wonder that it is the enemy of all the inhabitants of the sea; fisherman, boatman, swimmer, and skin diver.

From the Weddell and Ross Seas in the Antarctica to the Beaufort and Barents Seas in the Arctic, the killer whale follows its victims, and here is where it finds an endless run of seals and whales.

In the Arctic, at the approach of killer whales, the young calf of a Beluga whale will swim upon its mother's back to escape death, and even then, the orca has been known to come up under the mother, collide with her, and knock the young mammal into the sea to be devoured.

Seals are definitely delightful for the orca to kill, and in the rookeries of the Pribilof Islands, not even the large pugnacious males will venture out when the killers are lurking offshore. One Pribilof sealing ship report was that thirteen seals were found in the stomach of a harpooned orca. Another report from a whaling vessel that the remains of thirteen porpoises and fourteen seals were discovered in a second killer has been recorded.

But the greatest offense is shown when the killers form what is known as a wolf pack and turn on the baleen and whalebone whales. Vessels in the whaling business carry high-powered, big-game rifles to thwart the attacks of orcas on whales which are tied beside the ship in wait of rendering. Once a killer is hit, its companions turn on it and chew it to shreds.

Hunting in packs from three whales to forty, they perform as the rats of the sea. In an attack on a baleen whale, an attack usually is lead by the king bull which drives

in and immobilizes the larger and more powerful mammal. The attack is centered most often on the baleen's tail, the orca bull tearing huge chunks from it. With the baleen helpless in the sea, the bull changes his maddened charge to the head.

It has been the horrifying experience of many an old salt to see the orca hold fast to the lip of the bigger whale until it lolls out its tongue. Then, the others in the pack, females included, tear it from the head of the baleen and eat it.

It is strange that the grampus will travel as far and as wide as it does in pursuit of something to kill. Whether whalebone or baleen whales, dolphins, porpoises, seals, or penguins, the end is still the same.

A British fishing boat crew once killed a thirteen-foot female killer thirty miles up the Forth River at Alloa, where the captain of the boat believed the orca had gone in chase of a school of salmon. Another British fisherman watched a grampus swim inshore to his boat, make a pass, miss, and then make a second pass.

When the killer came around again, the fisherman, in an impromptu act, threw a half-inch cable loop over a tail fluke, lassoing the killer and later shooting it dead with a rifle.

There are numerous cases where killer whales have invaded offshore waters to make man his target. At Manhattan Beach, California, and again at Malibu, a pack of orcas paralleled the surf line and drove thousands of swimmers ashore. This was immediately following the attacks by grey sharks and several accounts of the incidents cited the killers as being the grey or white sharks, rather than killer whales. A California division of Fish and Game warden, checking fish off Point Dume, California, retreated hastily when a killer whale surfaced one hundred and seventy-five yards from him and headed his way.

While there are instances where killer packs have shown an inclination to add swimmers, boatmen, and fishermen to their list of prospective victims, there is only one reported incident in which they succeeded.

This was off the coast of Cape Town, South Africa, where an orca bull bashed a twenty-five-foot fishing boat into driftwood and devoured four men who had been aboard. But the propensity of the orca is apparently to attack and kill anything that moves. Not long ago it stove in the hull of a fishing craft off the coast of Northern California. The two fishermen aboard outsmarted the whale and stayed with their disabled vessel, escaping the fate of the four South African fishermen, until the whale wearied of wating and vanished.

It has been the U. S. Air Force, however, that has given the killer whale the real pain in the neck. Icelandic fisherman call on the Air Force's fighter planes to get in a little target practice every year. The fighter planes come in and strafe the fishing grounds, cleaning out the congregation of killer whales and thus saving the precious nets of the fishermen.

What with the growth in boating, skin diving, and other ocean sports, it stands to follow that the killer whale's fierce character should be exposed.

The killer whale that chose Captain McGuire's vessel slashed across the bow and took everything down to the hawseholes with it. Benny and his mates were on the stern, preparing to lower the net into the water, when the orca barreled out of the sea. They weren't even scratched, but that doesn't say they weren't scared out of their wits.

Like Benny says, you'll need all the "Saints protectin' Ireland and the Irish," if you happen to fall into the jaws of that seagoing demon, the killer whale—meanest thing in the sea.

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NEWS CURRENT

(Continued from Page 30)

return on Labor Day, September 4. The cost, including transportation, hotels, meals and boats, will be under \$500. San Andreas has a large world-wide free port where prices on everything from cameras, china, perfumes and cosmetics to choice wines and liquors are said to be the lowest in the Caribbean. Both English and Spanish are spoken by the natives. Tour members will be guests at the Hansa Club Villas, owned and operated by Bob Lee, an American, during their stay. For information on the tour, contact: Juliet Bridgman, Central Public Relations, Inc., 441 Lexington Ave., New York 17, N. Y.

HELSTON, ENGLAND—Four men who were trying to blow up a shark were blown up themselves . . . by the shark. Two of the men were killed and the others seriously injured in one of the strangest accidents. It happened off Porthkerry Point on the Cornish coast where Lt.-Cmdr. J. W. Bailey was directing diving operations. The day before the accident a dangerous shark, rare in English waters, attacked three divers. The next day as four men were preparing to dive the same type shark was spotted circling the boat. So Lt.-Cmdr. Joseph Brooks, Petty Officer Leonard Spicer and two Admiralty civilians, Leslie Nye and Richard Kirby, went in a dinghy to scare it off. The Navy men threw a line with 14 ounces of high explosive tied to each end. The line wrapped around the shark's dorsal fin . . . the shark turned, dived under the boat and the explosive went off. The dinghy was blown to pieces, killing Nye and Kirby. The other two men were pulled from the water critically injured.

CONCORD, NEW HAMPSHIRE—New Hampshire's commercial lobster fishermen and divers clashed in a public hearing before the House Fish and Game committee which was listening to arguments for and against six bills concerning lobsters. House Bill 370 would allow divers to take lobsters (they have been banned from this since 1955). The other five bills include: the abolishment of the \$5, \$15 and \$25 licenses and replacement with a \$50 license; a 5 p.m. curfew on the catching of lobsters; the sale of processed lobster meat in New Hampshire; an extra license for some stores to sell lobsters and a limit on the maximum size of lobsters. The last three measures did not evoke opposition.

GLENDAL, CALIFORNIA—A popular and heartwarming class that has been conducted for some time is the Junior Frogman group at the Glendale YMCA. Homer Fletcher specializes in teaching handicapped youngsters to swim and dive. Fletcher has discovered, as well as his fledglings, that although the children on land are locked to wheel chairs, braces and crutches underwater they experience a wonderful freedom. The youngsters learn quickly and soon are retrieving weights from the bottom of the pool, rescuing "drowning" victims and frolicking happily.

CHICAGO, ILLINOIS—A novel twist to the fashion show was displayed in the "Gentlemen's Quarterly," in April. The models posed nonchalantly in the summer's latest sport shirt designs . . . at the bottom of a pool.



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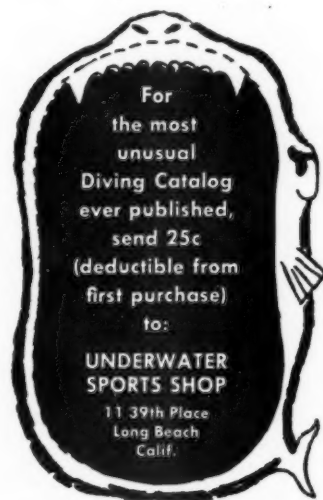
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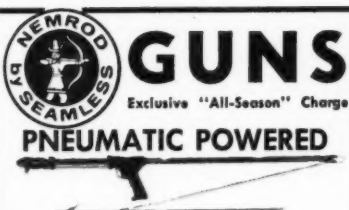


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LYNN, MASSACHUSETTS—At a recent meeting of the Nahant Board of Selectmen the chief of police asked that a regulation against skin diving be considered. At the suggestion of the chairman of the group a letter was sent to the Marblehead Board of Selectmen requesting information on action they have taken on diving.

GEORGETOWN, SOUTH CAROLINA—A team of Navy divers from the Explosive Ordnance Disposal Unit inspected the sunken hull of the Harvest Moon on the bottom of Winyah Bay. The Civil War flagship hull was found intact and the divers hoped to recover relics. The ship was sunk by a Confederate torpedo during the waning days of the Civil War while it was the flagship of Federal Admiral Dahlgren.

ATLANTA, GEORGIA—George Krasle and Sara Janice Martin have discovered that it was necessary to be married twice. They first met while diving and plan to spend their honeymoon in the Bahamas, diving. So-o-o-o they wanted to have the marriage ceremony performed underwater. The ceremony was underwater, but the Methodist bishop of Atlanta felt that such sacred vows should be taken in the more spiritual atmosphere of a church or home. Another ceremony, on land, was performed the same day.

NEW YORK, NEW YORK—A camp for the blind sponsored by the Lighthouse, the New York association for the blind, features among its active lists of things to do—skin diving. At five association camps more than 600 blind New Yorkers enjoy summer vacations especially geared for them.

QUONOCONTAUG, RHODE ISLAND—Bill Seavey has probably opened up another field of operation for skin divers. All winter he went oystering under the thick ice cover in Charleston Pond. While weather conditions frustrated oystering by conventional methods and produced near scarcity of the succulent shellfish on local markets, the diver was picking them from the bottom of the ice covered pond. He said the ice was as thick as 25 inches.

FLORIDA—Dr. C. P. Idyll of the Marine Laboratory of the University of Miami reports that the price of ambergris once worth its weight in gold has dropped to \$2.00 to \$9.00 an ounce depending on the quality. The whale is the sole source of ambergris, base of some of the world's choicest perfumes.

SUVA, FIJI—An underwater eruption is occurring in Savusavu Bay off Vanua Levu, second largest island in the Fiji group. Columns of water have been hurled 100 feet in the air.

Who said that—juvenile divers are causing increasing confusion in vacation spots. The lifeguard at a lake resort was recently heard begging over a loudspeaker, "Will the boy with two left frog feet, please check in with me immediately?"

WILDWOOD, NEW JERSEY—Ron Smith and Gus Olson are assisting the U. S. Coast Guard in locating two huge 600 gallon fuel oil tanks from the 83 foot Coast Guard launch, CG-83529 which broke up on the north jetty of the Cold Springs Inlet. The divers are searching the water for the missing tanks which measure eight feet long, six feet wide and five feet deep.

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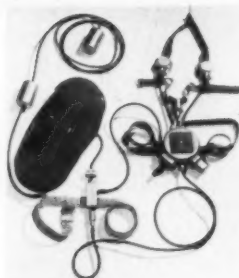
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(Continued from Page 39)

ods previously devised, I returned it immediately to the surface to be fixed for later analyzation. I then returned to the depths taking temperature, light readings, and collecting sediments. When I began to take pictures I noticed how the long white line stretched above me to the only access to the surface. In the whole two hundred and ninety-four acres of ice this tiny hole was my life. The ice cover would occasionally crack as it developed reactions to the thermal changes and settling. These cracks would resound with dull thuds quite audible below. Above the ice and its snow cover the crisp air, illuminated by the sun set in a clear blue sky, signified freedom and life. Up there my assistant was chemically fixing my samples, and my safety man stood handling my life line. Below around me the black inky waters readily absorbed my light beam inches from its point of origin, and left me in a world of blackness.

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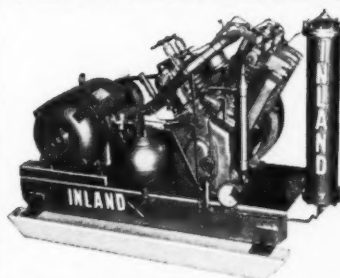


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ALONE

(Continued from Page 48)

leaped out of his hand, and he was gasping air through the snorkel while the shark spun around in a tight clockwise circle. It didn't pull out of it or stop, but just tore on round and round like a Catherine wheel, and Mike knew he'd got it right in the eye.

The other sharks froze in the water; surprised, they hung there for a full moment; then they got it. All five of them hit the tiger together, rending and snapping crazily. A great cloud of blood spread in the water.

Mike dragged himself away from the scene. It was better without the gun. He swam until he couldn't go another stroke. Then he lay out in the water, panting so hard that the mask sucked in against his face with every breath.

He stared back behind him, but there was only a redness. Nothing came after him. He had played his ace.

There was no moon. The water heaved in the sultry darkness, glimmering with phosphorescence. Stars drifted above and below him. He seemed to be beating slowly through space. Darkness engulfed him; then schizopod shrimps would rise like lonely suns, thicken into constellations and drift away, and brilliant dusts would form on the undertide, then condense and flood the sea with protozoic flame. He watched his hands, leprous and white, grope through the fiery sea and traced with half dreaming eyes the comet paths of fish. Then there was only darkness, blacker than before.

He would lift his head with an effort, into the cooler air, check with the dimmer stars for east, and hear the immeasurable sigh of the ocean. Sometimes he heard across the waves, like a gun, the sound of manta hitting the sea, and knew that somewhere nearby great thirty-foot bodies were rushing together, leaping high into the air, pressed wing tip to wing tip in their mating dance.

The Pleiades swung, and the waters gleamed and died, and once something vast and terrible rose like a city in the waves. Mike heard the water draining from its sides and saw its darkness blotting out the sea. It made a sound—something between a hiss and a moan—and presently it slid back into the depths. He heard the water sucking down after it long after it had gone.

Another sun rose, a burning eye set level with the sea. And still Mike's legs were moving, just moving. Now, he thought, now the sharks will come again, and he thought of them as only liberators who would free him from the instinct that tortured him on.

Again the undersea dawn began,

SKIN DIVER—July 1961

and nothing came—nothing but jellies, colored like sunset on ice, filling the sea with their tilted, opening-and-closing parasols; and the dorados, they came. With a glint of gold and greeny-blue, they skidded into him and turned him over. They were under him and over him and around him and away, kicking up the water in bursts of saline fire. And there was blood in the sea where the tuna caught the dorados. And still nothing came.

Mike caught a fish in his hands and ate it. He couldn't see any sense in it, but he couldn't stop himself either. His legs continued to move, almost automatically, and at high noon he saw his mother, her little-girl face collapsed with age, and she was saying in her child-voice: "All failure is a kind of death," and he thought how right she was. He had forgotten her failure with the old man. It seemed to him then that they were still together and perfectly happy. He was little crazy.

And then a shark came. It came up behind him in the molten-metal sea, cutting through the water like the keel of a sailing ship.

Come on, you dog, Mike said to it, and: You're late! Just like the ten-o'clock scholar. (He was back at school.)

He waited for it, but it wouldn't come in, just sniffed at his fins and took a wide turn around him. He wanted it to come in, but it wouldn't take him. Yesterday he had wanted to live, but now he didn't care. If he could have slept, he would have been all right, but now he just wanted the shark to hurry up and get it over with.

So he turned his back, and when he looked round again the shark was gone. It stayed gone, and the sun burned down on the sea, which became like watered silk, very glossy and silent, and the sound he made blowing through the snorkel seemed to grow very loud, like the roaring of the locomotives in Bay St. Louis station. He relaxed into a kind of dream, and he was back in the old city, in the old apartment, dirty from working at the garage. The old man was there, and Mike had just said he couldn't stick it any more with Mom gone and everything shot to pieces the way it was—that he was heading for the Far East, Ceylon maybe. His old man looked up at him over the tops of his glasses, with his mouth turned down and his eyes preoccupied with other people and other places, and, seeing him like that, Mike suddenly realized that he really was an old man.

Then the sun drowned in a sea of blood, and he was alone in the dusk with night moving up the sky. This was

(Continued on Next Page)

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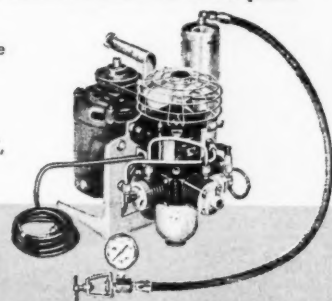
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ALONE

(Continued from Last Page)

his last night, he thought. Tonight he would die. There was nothing left in him to regret with or to pray with, nothing but this instinct driving him on with limbs he could no longer feel.

At last the sharks came. They came with the departing light, like slim blades in the sea. There was nothing to stop them, but they came on carefully, avoiding his fire-trail in the darkening water. He closed his eyes. It was getting late.

The sunset's imprisoned image burned dimly in his brain, like a candle guttering low, and sounds grew enormous in the water. For an instant, poised on the edge of delirium, he heard the whisper of his own fins and, behind them, the shudder of tails, like someone thrumming the deadened bass string of a harp with their fingernails. The tempo increased. Now, he thought. At last! The water shook against him, beat on his eardrums, diminished and was still.

His lids flickered. Below, in the iridescence, fish-trails sparkled through the water like a million shooting stars. They streaked ahead of him and were gone; then more, in gleaming panic, raced by—then more and more.

There was thunder in the sea, but he didn't hear it. He fell into a dreamy state. It seemed to him that the waters were boiling around him with phosphorescent light; that he was lifted and flung, buffeted by tails, flung again; that in the luminosity he saw the ocean packed solid with gleaming backs, heard their panting and heaving. Then he was down under the water, and the migrating false killer whales were above him, lighted by the phosphorescence, belly upon belly, rank upon rank.

Then somehow there was air and the sea eddied and gleamed, and the turmoil rumbled away across the sea, and he was alone.

A light forced its way under his lids, and he turned away from it. There were cold bodies around him, and when he moved they squirmed. It was still a dream, and it was wrong somehow that there should be a man in it, holding a lamp, and, in the dimness, others staring at him.

They wore ragged sarongs, and they looked for all the world like Singhalese fishermen. For some reason their eyes were wide and frightened. Their hands were dragging at a net; Mike realized suddenly that he was in the net—caught!

He learned later that he had wound up a mile off Galle, South Ceylon. He never knew how; probably the current

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had been working with him all the way. But somehow he had made it. The fishermen admitted afterward that they had thought he was some strange kind of monster and had nearly lit into him with their gaffs. The incident certainly gave rise to some queer tales which Mike didn't altogether like. The Ceylon Courier gave him a full-page spread. "Fish-man," the article called him again and again, and when he got out of the hospital and went down into Colombo, people looked at him strangely and weren't quite sure what to do with their eyes when they talked to him. He never spoke about it much himself, because of the feeling he had had in the net.

He knew it was a net and that they were men around him—and he was afraid. The lamp seemed to draw his eyes till the flame filled his mind, and in the darkness all around, there was terror. He gasped for air, but none would come. He struggled, and the other fish around him struggled, and he twisted and kicked, knowing only that he must get back to the sea, that he must slither back somehow into the dark cavern of the water and dart away through the softness and the silence to where he belonged. It was a sensation of the purest fear—uninhibited by logic or pride or anything human, undiluted and nightmarish—such as only a wild creature might feel when it falls a victim to man.

Then one of the natives bent over him and took off his fouled-up mask, and there was air in a cool rush and he blacked out.

UNDERWATER ENDURANCE

(Continued from Page 38)

the best way to convey messages to outside tenders. Slates were available for this purpose, but the erasing involved proved to be too tedious.

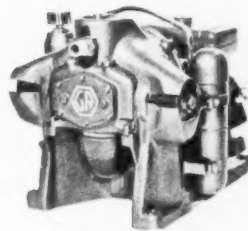
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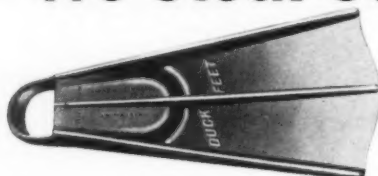
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(Continued from Page 23)

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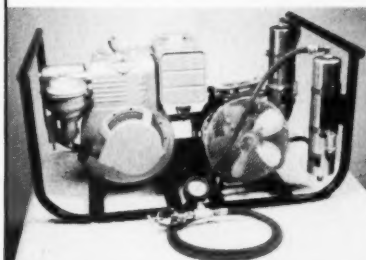
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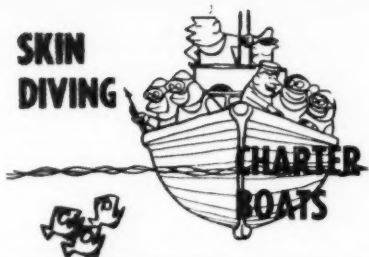
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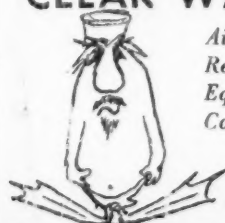
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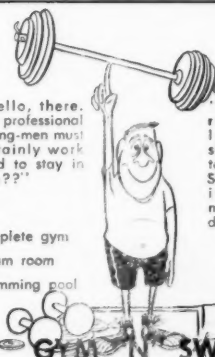
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SO-SHO-NE, INC.

246 Bridge St., Rt. 3A, N. Weymouth, Mass.
Skin Diving Outfitters & Repair Station ED 7-3186
YMCA and NEC Certified Instruction Fill \$1.00

COLONIAL MARINE, INC.

Route #1, Norwood, Mass. NO 7-1100
[At Airport Entrance] \$1.50
Complete Line Skin Diving Equipment & Repairs

SOUTH SHORE SKIN DIVER

591 Washington Street
Quincy Point, Massachusetts PR 3-5452
Complete Sales—Repairs \$1.00

ANDY'S AQUA SHOP

311 Bridge Street, Salem, Mass.
Rentals, Sales, Instruction, Repairs PI 4-8813
Charter Boat Diving Parties Fill \$1.00

SKIN DIVING SUPPLY CO.

Route 6 & Main, Wareham
Sales, Rentals, Repairs, Instruction CY 5-0285
Open 7 days \$1.50

SEACRAFT INDUSTRIES, INC.

3A Church St., Wilmington
Retail Sales & Service OL 8-3393
Wholesale Distributors for all Major Lines \$1.00

DIVERS WORLD, INC.

751 Main, Route 38, Winchester, Mass.
Instruction—Sales—Service
5 Minute Refills—Light Salvage \$1.50

MICHIGAN**DAVE'S SCUBA SHOP**

3162 Packard, Ann Arbor NO 3-0791
EVERYTHING for the Skin Diver
3-9 daily 9-9 Sat. and Sun. \$1.50

VILLAGE SPORT & HOBBY SHOP, INC.

154 S. Woodward Ave., Birmingham, Mich.
Sales—Rentals—Hydro Tests MI 4-3010
9-6 Mon.-Sat.; 9-9 Fri. \$1.50

THE AQUA SHOP

Wil-O-Paw Drive, Coloma, Michigan
Refills—Sales—Rentals—24 hrs. HO 8-4078
Everything for the Diver who does \$1.50

SEAWAY DIVING & EQPT. CO.

5725 S. Telegraph Rd.
Dearborn 9, Mich. Tested Air \$1.50
CR 8-6750

SPORTS OUTLET

5279 Schoeller, Dearborn LU 2-1892
2280 Woodward, Ferndale LI 5-4884
124 W. 4th St., Royal Oak LI 3-2630

NEPTUNE SPORTS STORE

4222 Woodward Ave.
Detroit, Michigan TE 1-3800
\$1.00

SKIN DIVING & SKI SHOP, INC.

18270 Grand River Avenue
Detroit 23, Michigan VE 7-1995
Daily 10-9; Sat. 10-6 \$1.00

MICHIGAN SCHOOL OF DIVING

559 East Woodland
Ferndale, Michigan LI 3-4536
Air Any Time

WATER SPORTS DISTRIBUTING CO.

23322 Woodward Ave., Ferndale
Phone LI 8-8508
Dealer inquiries invited \$1.50

DIVERS SUPPLY, INC.

G-4142 Fenton Rd. near So. Plaza, Flint
Tanks hydrostaticated
8 a.m.-10 p.m. 7 days \$1.50

BILL & PAUL'S SPORTHAUS

Complete Diving Shop GL 8-0639
1528 Lake Drive, S.E. Full air fill \$1.50
Grand Rapids, Mich. Open MWFF 'til 9 p.m.

GRAND RAPIDS DIVERS SUPPLY CO.

502 Carrier, N.E.
Grand Rapids 5, Michigan RI 2-2689
\$1.50

DIVER'S SUPPLY U.S.A.

525 Trimble Ave., Kalamazoo, Mich.
Sales, Rentals, Mail Order Catalogs FI 3-1913
24 hr. Service 5 fills \$6

MILLER & BOERMAN

330 W. Michigan Ave., Kalamazoo, Mich.
8:30-5:30; open Wed. nites; closed Thurs. p.m.
Complete skin diving supplies-rentals \$1.50

WOLF'S ENTERPRISES

513 Court St., St. Joseph, Michigan YU 3-1008
Wholesale, Retail, Rentals
If its for down under, look us up 5 fills \$6.00

ST. CLAIR DIVERS & MARINE SALES CO.

24530 Jefferson, St. Clair Shores PR-7-9854
Retail, Wholesale, Diving, and Boat Supplies
Rentals, Repairs & Owens Boat Sales \$75

BILMAR SPORT SHOP

212 East Front Street
Traverse City, Michigan. WI 7-8005
Full line of Diving Equipment \$1.50

AQUATIC & DIVING EQUIPMENT CO.

2869 Pontiac Trail
Walled Lake, Michigan MA 4-1417
9 to 9 \$1.25

J. M. SPORTING GOODS

Everything for the Skin Diver
1079 Fort St., AV 4-3212
Wyandotte, Mich. \$1.50

MINNESOTA**BRAINERD SKIN DIVING SUPPLY CO.**

1302 9th Ave., N.E., Brainerd
Phone: 829-5953
24 hour yearly service \$1.50

TRAVIS DIVING COMPANY

16809 North Scenic Lane
Hopkins, Minnesota
All hours; phone West 8-4821 \$1.50

DONALDSON'S

601 Nicollet Avenue
Minneapolis 2, Minnesota
Regular store hours \$1.25

JACK THE FROGMAN CO.

4251 Nicollet Ave., South
Minneapolis 9, Minnesota 24 hr. service
Air filtered five times \$1.50

PAULSON DIVERS SUPPLY

2935 Newton Ave. N., Minneapolis 11, Minn.
Rentals, Sales, Instruction, Repairs JA 1-8684
Hours: 10 a.m. to 9 p.m. Daily

MIDWEST SKIN DIVING SUPPLY COMPANY

405 South Wabasha Street (at Concord)
St. Paul, Minnesota \$1.50
CA 4-7155 after hours call CA 5-0645

ST. CLOUD SKIN DIVER CO.

1703 3rd St. No.
St. Cloud BL 2-1604 \$1.50
Hours: 8 a.m.-9 p.m., Sun. 9-12 noon.



(Continued from Page 75)

MISSOURI

INDIAN POINT BOAT DOCK
Branson, Mo., off Hwy 76, back of Marvel Cave
Sales-Service-Rentals-UW Guide Service ED 4-3645
Introductions-Lessons (24-hr. service) \$1.50

MIDWEST DIVING SUPPLY COMPANY
Wholesale & Retail
2218 South Broadway, St. Louis 4, Mo. PR 6-2059
Open 7 days a week \$1.50

NEVADA

WHAMCO DIVERS UD-10
2009 Linden Ave., Las Vegas, Nev.
Hours: 9-6 Air Available 24 hrs. \$1.50

NEW HAMPSHIRE

HAMPTON BEACH DIVERS SHOP
2 Bailey Avenue
Hampton Beach, New Hampshire
Rentals—Supplies—Refills \$1.25

LAKES REGION DIVERS SUPPLY HDQS.
Weirs Blvd., Laconia, New Hampshire EN 6-4970
Immediate refills/Sales/Service/Rentals
Instruction. 7 days a week year round \$1.50

NEW JERSEY

BOB KISLIN'S SPORTING GOODS
Everything for the skin diver at lowest prices
701 Main St. Prospect 4-0900
Asbury Park, New Jersey Refill \$1.50

KOSEFF'S, INC.
3rd and Bay Avenues, Beach Haven, N. J.
8 a.m. to 9 p.m. (June, July, Aug.);
9-6 (other months) \$1.50

GUY'S SPORT SHOP
A complete line for skin divers—rentals
705 Ninth Ave. Belmar, N. J. MU 1-0089

TINKERTOWN HOBBY SHOP
1012 Cedar Bridge Road TW 2-6991
Briarcliff, New Jersey; Open seven days
Sales, Service, Rentals, Instruction \$1.00

CALDWELL SPORT SHOP
356 Bloomfield Ave., Caldwell, N.J. CA 6-2986
"In Stock—A Complete Line of
Skin Diving Equipment." \$1.50

CHADWICK SCUBA DIVING SHOP
Rt. #35, Chadwick Beach, N. J. SW 3-7292
Sales, Service, Rentals, Diving Trips
Instr. Ocean, Bay or Lake Free 7 Days

M & E MARINE SUPPLY CO.
George W. Kinsey
Route #130, Collingswood, New Jersey

DENVILLE BOAT & SPORT CENTER
"New Jersey's Largest," Rt. #46, Denville
Complete Skin Diving Outfitters \$1.50
Hours: 4:30 a.m. - 9:00 p.m. daily OA 7-3030

DOVER SPORT CENTER
Route 46, Dover, New Jersey
Six Minute Service FO 6-3133
8 a.m. to 9 p.m. Fill \$9.50

M. B. M. DIVING SUPPLIES
261 New Brunswick Avenue
Fords, New Jersey VA 6-4849
Refills and Supplies

SKIN DIVERS SUPPLY & SALVAGE CO.
326 Bloy St., Hillside, N.J. MU 7-2777
Complete sales, service and rentals
Hours: Mon.-Sat. 9 a.m. till 9 p.m.

THE BOTTOM SHOP, INC.
State Highway 35, Keyport, N. J.
9 a.m. to 9 p.m. LOwell 6-0606
Sales, Service, Repairs, Rentals

GARDEN STATE SWIMMING POOL & SUPPLY
324 Main St., Madison FRontier 7-4400
Rentals & Supplies 10 fills \$12.00
Hours: 8-9 M-F, Sat. 9-6 July Single \$1.50

RAMSEY OUTDOOR STORES, INC.
Route 17, Paramus, New Jersey
Single tank Air Pass \$10.00 per season
Open 10-10—Single refill \$1.00

DIVERS LOCKER
321 Smith St. VA 6-3875
Perth Amboy, N. J. 12 fills \$10.00
Hours 9-9 daily Single fill \$1.00

4 DIVERS, INC.
56 Broadway
Point Pleasant Beach, N. J.
Sales—Service—Rentals & Air

RAMAPO GULF SERVICENTER
289 Wanaque Ave., Pompton Lakes, N. J.
Pure Filtered Air; Refills While You Wait TE 5-9817
Hours: 7 a.m.-9 p.m.; Sun. 'till 3 p.m.

UNDERWATER SPORTS OF N.J.
A complete line for skin divers
Hours 10-10
Route 17, Rochelle Park, N.J.

ROCKAWAY SALES CO.
Route 46, Rockaway, New Jersey
"Air Tested 99.9995 Pure" \$1.25
10 a.m. to 10 p.m.

BOWCRAFT SPORT SHOP
Route 22, Scotch Plains, N.J.
Hours: 9-9
Twelve refills \$15, single refill \$1.50

DIVE RITE
1140 Ocean Ave., Sea Bright, N. J. SE 2-2370
Skin diving equipment and supplies
Air Station. Open 7 days

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25-22 Steinway St., Astoria, L.I. AS 4-3610
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Open 7 days Immediate refills \$1.00

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50 East Main Street, Babylon, New York
Everything for the Skin Diver MO 9-2323
Free Lessons—Repairs \$1.00

MID-ISLAND FIRE EQUIPMENT SERVICE
11 South Grand Avenue
Baldwin, New York BA 3-8246
A complete line for skin divers

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3470 Webster Ave., near Gunhill Rd. TU 1-3558
Bronx 67, New York Repairs, Rentals, Lessons
Hours: Mon.-Fri. 1-10 p.m.; Sat. 9 a.m.-10 p.m.

INDEPENDENT WELDING SUPPLY CORP.
268 East 142nd St., Bronx 51, New York
Minutes from Tri-Boro Bridge
Scuba Filled While You Wait \$1.00

AQUA-LAND
244 Brighton Beach Ave. DEwey 2-1040
Brooklyn, N.Y.
Sales-Rentals-Repairs-Refills

CENTRAL SKIN DIVING—BROOKLYN & QUEENS
1007 Utica Ave., Brooklyn, N.Y., DI 5-1070 \$5.00
160-09 Jamaica Ave., Jamaica, N.Y. RE 9-5772
1 Free Lesson—Heated Indoor Pool—Try B 4 U Buy

HARVEY'S SPORTING GOODS, INC.
2003 Emmons Ave. 10 refills for \$5.00
Brooklyn 35, N.Y. Sheepshead 3-0054
Open 7 days a week—Immediate refills

THE SENECA BUOY, INC.
931 Seneca Ave., just off Myrtle Ave. Empire 6-3435
Brooklyn 27 6 fills \$5.00
Sales-Rentals-Service

COLLEGE MARINE & DIVING CENTER, INC.
18-51 122nd St., College Pt. 56, N. Y. FL 9-9123—Refills while you wait
Diving Equipment Sales-Service-Repairs

B & B SPORTING GOODS CO., INC.
162-02 Northern Blvd. IN 1-5461
Flushing 58, N.Y. \$1.00
Mon.-Thurs. 8 p.m., Fri. 9 p.m.; Sat. 7 p.m.

SPORT WORLD
138-10 Northern Blvd., Flushing, N. Y. FL 3-1803
"North Shore's largest Skin Diving Center."
Refill while you wait \$1.00

DANTZIGER
70 So. Main St. FR 8-4480
Freeport, L. I., N. Y.
Equipment sales and refills

HEMPSTEAD OUTDOOR STORE
5 North Franklin Street
Hempstead, L.I., N.Y. Filled while you wait
IV 6-9851 10 fills for \$10.00

BRAD'S AQUA SPORTS CENTER
Route 9, Lake George, N. Y. NN 8-2638
Professional Diving Center C-B 2A5319
Air—Sales—Rentals—Instructions

DAVY JONES' LOCKER
Mayard Ctr., Lake George, N. Y. NN 8-2052
Finest Diving in the East
Area's Largest Skin Diving Center

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2132 Sunrise Highway FR 8-4205
Merrick, New York—Filled While You Wait
Certified Pure Air—Open Every Evening

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Air Station—3133 Benjamin Rd. RO 4-3429
Equipment Sales—196 Amos Ave. RO 4-8374
Oceanside, L. I., New York \$1.00

LARKIN CAMERA & SPORT SHOP
7 Bridge St., Plattsburgh, N. Y. JO 3-5762
On Historic Lake Champlain
Hours: Daily 9-10; Sun. 10-7 \$1.50

MAC SNYDER'S ARMY & NAVY STORE
136 Surf Ave., Port Jefferson, L. I., N. Y.
Rentals—Instruction PO 8-1592
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BOB & LEE'S HOBBY & SKIN DIVING CENTER
111-05 Lefferts Blvd., Richmond Hill 20, N. Y.
Everything for the diver, sales, service,
rentals phone Virginia 8-4321

NAUM BROTHERS SPORTING GOODS
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Hours: Daily 8-9, Sat. 8-6 \$1.50

NORTH CAROLINA

NATIONAL WELDERS SUPPLY CO.
Tanks Filled; Aqua-Lung Supplies
Charlotte—Asheville—Salisbury—
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OHIO SKIN DIVERS HDQTS., INC.
Sportsman Lake, Cedarville SO 6-3041
7041 Vine @ Seymour, Cincinnati 16 VA 1-2514
Refills, Sales, Instruction

ACE AIR COMPRESSOR CO.
1647 Eddy Road Shop GL 1-3011
Cleveland, Ohio Nights RE 1-6014
Refills—Sales—Instructions

THE NEWMAN STERN CO.—SOUTH GATE
5365 Warrensville Center at Libby Rd.
Cleveland, Ohio
Everything for the Skin Diver

ELYRIA DIVERS SUPPLY
336 Prospect St. Phone FA 2-3158
Elyria, Ohio
Sales, Rentals, Refills Air \$1.50

PENNSYLVANIA

WORTHINGTON SALES AND SERVICE
1720 Old York Rd.
Abington, Penna. \$1.75
Phone OL 9-1376

FENJOHN COMPANY
90 Cricket Avenue
Ardmore, Pa. \$1.50

ADVANCED AQUA DIVERS
Division of Advanced Fire Eqt. Co. Inc.
Rt. 30 West, Greensburg, Pa.
Phone Temple 4-6550

POLLY BROS.
7th & Market Sts.
Philadelphia 6, Pa.
Telephone Walnut 2-6565 \$1.50

HONUS WAGNER'S
813 Liberty Ave., Pittsburgh, Pa.
12 Refills \$15.00; Single Refill \$1.50
Pure Tri-Filtered Breathing Air

WIEST'S SPORTING GOODS
450 Penn Avenue
West Reading, Penna. FR 5-5250
A complete line for skin divers \$1.50

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POINT JUDITH FROGMEN
P. O. Box 563, Breakwater Village
Point Judith, R. I. ST. 3-8096, ST 3-7184
Equip. Rental. Hours: 7-5 daily \$1.50

SOUTH CAROLINA

NATIONAL WELDERS SUPPLY CO.
Tanks Filled; Aqua-Lung Supplies
Charleston—Florence—Columbia—
Greenville, South Carolina

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MID-SOUTH MEDICAL GASES, INC.
651 Jefferson Ave., Memphis, Tenn.
8-5; Sat. 'til Noon
Vot Distributor 5 minute refills \$1.50

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1626 N. Industrial Blvd.
Dallas 7, Texas RI 8-2812
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2719 Live Oak Street TA 3-5046
Dallas 4, Texas TA 7-6361
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A 2-3158

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\$1.75

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Downtown, 5 blks. W. of Courthouse
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Year-round Refills, Sales, Service
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12312 E. Sprague
Opportunity (Suburban Spokane)
Hours 9-6, Fri. till 9, Sun. 8-9 a.m.
WA 4-2330
\$1.25

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Hours: 9-5:30
Mon. & Fri. till 9 p.m.
\$1.25

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1657 Harbor Ave. S.W., Seattle
Hours: 8-6 7 days a week
Emergency phones: WE 5-5811 & WE 5-5794
\$1.25

WISCONSIN

BROOKFIELD SKIN DIVING SUPPLY, SCHOOL
310 No. Moorland Rd. (City Ct), Brookfield, Wis.
Hours: Mon.-Sat. 9-9; Sun. 12-5
Instruction—Equipment—Rentals
Air \$2.00

SKIN DIVER'S EQUIPMENT CENTER
1517 Belknap St., Superior, Wis.
Lake Superior Excursions
Sales—Rentals—Salvage Experts
Air \$1.50

SKIN DIVERS SALES & SERVICE
929 S. Park St., Madison
Hours: 7 a.m.-8 p.m. 7 days a week
Air, Rentals, Instruction, Repairs
AL 6-0451
\$2.00

SPORT DIVER CORP.
3810 W. Lisbon Ave., Milwaukee 8, Wis.
Hours: Mon., Wed., Fri. 9-9
Tues., Thurs., Sat., 9-6
\$1.95

RACINE AQUA-LAND
Hwy 38 & Cty MM, Racine, Wisconsin
Midwest's Best Skin Diving
Crystal Clear Water—Insured Pure Air
ME 2-9587
\$1.50

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BOB'S AIR SERVICE
222 Kenilworth Ave., North
Hamilton, Ontario, Canada
Equipment—Rentals—Instruction
LI 9-1043

LLOYD SHALES HOBBY SUPPLIES
208 Division St.
Kingston, Ontario
Equipment Sales—Instruction—Demonstration
LI 8-8427

SUPREME DIVERS
160 King St. East
Toronto, Ont., Canada
Instruction—Rentals—Sales—Repairs
EM 4-9715
EM 4-2911
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WESTON AQUATICS & SPORTS
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Weston, Ont.
Equipment and Rentals
CH 1-9139

ISLAND DIVERS, LTD.
315A Wesley St., Nanaimo, B. C.
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Single \$1.25

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Military Highway, No. 2 Entrance Puerto Nuevo
Tel. 8-0072

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C & M CARON
Main St. St. Thomas
Sale, Rent, Service, Refills
8:30-5:30 except Sundays
P.O. Box 315

SKIN DIVER—July 1961

PERSONALITY SPOTLIGHT

(Continued from Page 34)

what you think it should look like or what it looks like under the filtered water conditions. So many people use daylight type film which is approximately 5400 kelvin degrees, then use clear flash bulbs which are balanced for 3800 kelvin degrees. It's only logical that the results are going to be too red. Then there are others who use daylight film and blue bulbs which is okay but tolerances of daylight film and blue dipped bulbs vary considerably between batches, besides the light is cut down by the filter effect of the blue filter or dip on the bulb. For maximum consistency and uniform color results type F (flash) film balanced for 3800 kelvin degrees and clear flash 3800 kelvin work out the best. This is only true when the subject you are shooting is entirely lighted by the flash itself. If you are going to shoot partially daylight too, you must use daylight film and fill in with blue flash. On the close up shots it will be necessary to use a very small weak bulb to fill in."

Shell collecting is also another facet of Ron's diving and although he has only been collecting shells and coral, for about two years he claims he may soon have to move out of the house to give them room. "It is a lot of fun to trade extra shells in your collection with other divers and tell each other tall stories about when they were gotten."

Our spotlight goes underwater an average of four days a week, either spearfishing, photographing or catching little goodies for his salt water aquarium. In the summer when the yellowtail and other game fish are in, he's at the beach every day.

"My favorite diving location," Ron says, "is a little secluded sand beach with palm trees in a beautiful protected cove about 20 miles north of Guaymas, Mexico. We call it Grouper Gulch. There is an interesting reef off shore where you can find larger grouper, turtles, toadfish, yellowtail, permit, jack crevalle, manta rays as well as many other beautifully colored small fishes."

Ron has dived in areas throughout the world including Guaymas, Cape San Lucas, La Paz, San Luis Gonzaga, Acapulco, Guadalupe Island, Scammons Lagoon, Costa Rica, Catalina, Santa Cruz Island, San Benitos Island, Cedros Island, San Francisco, Wake Island, Hawaii, Johnston Island, Canton Island, Florida, Gulf of Mexico, Tres Marias Island, Matzatlán, Zihautaneho, San Jose Del Cabo, Loretto, Rancho Buena Vista and the Pacific Coastline.

The twenty-six year old diver is a photographer by profession. While an aerial photographer for Convair he reached the speed of Mach 2 at 50,000 feet. Currently he is trying to promote underwater photography and has been free lancing. One of his assignments included a trip to Scammons Lagoon to photograph gray whales in 35mm color motion pictures for a Hollywood producer. Life magazine has scheduled a couple of his underwater shark pictures and other underwater fish pictures for their new book "The Sea." His greatest ambition is to work as an underwater photographer making underwater films to show unfortunate people who do not dive just how interesting and exciting the underwater world is.

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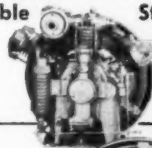


P. O. Box 99
Fields Landing, Calif.
Hillside 2-5305

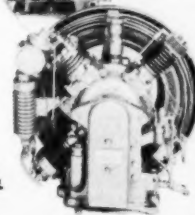


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AIR COMPRESSORS

NEW
2 CFM TO 12 CFM
4000 PSI — 750 RPM
Portable Stationary



MAKO K-13
32 MIN. FILL
3000 PSI—
750 RPM



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18 MIN. FILL
3000 PSI
750 RPM

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DIVERS!**
look for
this sign



Your assurance the air you buy is SAFE!

The qualified dealer who displays the Cornelius AIR STATION decal is the best man to see for refill service, and all the quality skin diving equipment you need. This aggressive dealer features only first line supplies. Naturally his AIR STATION is powered with a Cornelius Compressor, known and trusted by divers all over the world. You can count on a safe, breathable, dependable source of air where you see the Cornelius AIR STATION sign. Look at the many models of Cornelius Compressors — you'll want to own one yourself.

THIS IS A PARTIAL LISTING. ADDITIONAL "OFFICIAL AIR STATIONS" WILL APPEAR IN FUTURE ISSUES

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Hours: 7:30 a.m.-6

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**JUKE'S HOME & MARINE
SUPPLY CO.**
401 Live Oak St., Miami
Hours: 8:00 to 6:00

CALIFORNIA

CONLIN BROS., INC.
192 So. Greenleaf, Whittier
Hours: 9-6 Tues.-Thurs. & Sat.
9-9 Mon. & Fri.

KENNEY'S SCUBA AIR
1702 Foothill Blvd., La Canada
Hours: 10-10 daily

PACIFIC DIVERS
1426 Colorado Blvd., Los Angeles
Hours: 12 noon to 10 p.m.

THE SPORTSMAN'S SUPPLY CO.
7102 Pacific Blvd., Huntington Park
Hours: 9-6 except Mon. & Fri. 9-9

UKIAH BOAT SHOP
1076 N. State Street, Ukiah
Hours: 8:30 to 6

DIVER'S HUT
7928 State Street
Huntington Park, California
Hours: 9 a.m.-10 p.m.;
Closed Sun.-Tues.

COLORADO

**GART BROS. SPORTING
GOODS CO.**
1643 Larimer, 303 16th Street,
9801 E. Colfax, Denver
Hours: 8-9

CONNECTICUT

THE DIVERS DEN
79 Blinnman Street, New London
Hours: 6 p.m.-9:30 p.m. Mon.-Fri.
9-9 Sat.

**GIG'S U.S. SKIN & SCUBA
DIVING EQUIPMENT**
Meridan Road, Walcott
Hours: Summer 9-9; Winter 12-8

FLORIDA

CIESINSKI'S SKIN DIVING SERVICE
504 Simonton Street, Key West
Hours: 9-6

JIMMIE HUGHES SPORTING GOODS
1113 W. University Ave., Gainesville
Hours: 8:30-6, Mon.-Sat.

**HQ. AIR RESCUE SERVICE
(MATS) USAF**
Orlando Air Force Base, Orlando
Hours: 8-4, Mon.-Fri.
FOR MILITARY PERSONNEL ONLY

IDAHO

SIB KLEFFNER'S SPORTING GOODS
814 Jefferson, Boise
Hours: 9:30-5:30 except Fri. until 9

ILLINOIS

BELL'S GUN & SPORT SHOP, INC.
3313-19 Mannheim Road,
Franklin Park
Hours: 9-11 p.m. daily, 9-6 p.m. Sun.

RICHARD W. PATERSON
911 West John Street, Champaign
Hours: Phone FL 6-9169

INDIANA

ANIMAL FAIR
844 Broad Ripple Ave., Indianapolis
Hours: 10-5:30 Mon.-Sat.

COMPRESSED AIR SERVICE
417 Evergreen Street, West Lafayette
Hours: 24 Hour Service

**HILCREST COMPRESSED AIR
STATION**
Hilcrest Beach, Flint Lake,
Valparaiso
Hours: 8-10

**INDIANA FIRE PREVENTION &
BREATHING CO.**
545 So. East Street, Indianapolis
Hours: 8-5 Mon.-Fri., Sat. 8-12
Emergency — 24 hours

JOHNSTON'S SPORTS & MARINE
119 E. Lincolnway, Valparaiso
Hours: 9-5:30

SAPPENFIELD'S SPORT SHOP
1219-21 South Calhoun Street,
Fort Wayne
Hours: 9-5:30 except Wed. until 8:45

S.C.U.B.A. SALES & SERVICE
2032 S. Meridian St., Indianapolis
Hours: 12-8 Mon.-Fri.; 9:30-6 Sat.

SUB-MARINE EQUIPMENT CO.
3159 E. 10th Street, Indianapolis
Hours: 8-5, 7-9 Mon.-Fri.; 9-9 Sat.

WILLIAMS DIVING SUPPLY
RR No. 1, Box 146, Co. Rd. No. 13,
Elkhart
Hours: 5-10 Weekdays, 8-12 Sat.

IOWA

DIVE SHOP
720 20th St., West Des Moines
Hours: 5-10 Weekdays;
7:30-10 Weekends

KENTUCKY

**DAVID L. LYONS &
ESTILL E. LYONS**
198 N. Hanover & 1153 Liberty Road
Lexington
Hours: 7:30-5:30 (Hanover)
24 Hour Service (Liberty Road)

MARINE & DIVERS SUPPLY CO.
755 So. Shelby, Louisville
Hours: 9-9 Seven Days

MAINE

BLANCHARD ASSOCIATES, INC.
Western Avenue, Winthrop
Hours: 8-5 Weekdays; 8-12 noon Sat.

**CONGRESS HARDWARE &
PAINT CO., INC.**
273 Congress Street, Portland
Hours: 8-6; Mon. & Fri. until 9 p.m.

GAMMONS PHARMACY
Main Street, Limestone
Hours: 7:30-9:00

**GOODYEAR SPORTSMEN'S
OUTFITTERS**
237 Middle Street, Portland
Hours: 8-9

**HARVEY'S SPEED & DIVING
CENTER**
473 Stevens Avenue, Portland
Hours: 9-6 Weekdays; 9-11 a.m. Sun.

SKIN DIVER'S PARADISE
RFD No. 3, Turner Road, Auburn
Hours: 6-11; Sat. 6-9

UNDERSEA ENTERPRISES, INC.
69 Government Street, Kittery
Hours: 6-9 Mon.-Fri.;
9-9 Sat. & Sun.

WHITEHOUSE APPLIANCES
11 Water Street, Waterville
Hours: 8-9

WALKER MACHINE SHOP
Belfast
Hours: 6-6 Mon.-Sat.

MASSACHUSETTS

AL'S ROD & GUN SHOP
400 Broadway, Lawrence
Hours: 9-9 Mon.-Sat.

HARWICH FIRE ASSOCIATION
Bank Street, Harwich
Hours: 8-10

LECHMERE SALES CO.
88 First Street, Cambridge
Hours: 9:30-9:30 Mon.-Fri.; 9-6 Sat.

McGEE'S
1446 Acushnet Avenue, New Bedford
Hours: 9:30-5:30 except Fri. until
9 p.m. & Wed. until 12:30 p.m.

MAC-BEN SPORTING GOODS CO.
532 Main Street, Worcester
Hours: 9-6 Mon.-Sat. except
Wed. until 9 p.m.

MIDDLESEX AQUATIC CENTER
76 Elm Street, Medford
Hours: Mon.-Thurs. 8-6; Fri.-Sun. 8-9

NEW ENGLAND DIVERS
42 Water Street, Beverly
Hours: 8-9 Seven Days

**SOUTH SHORE SKINDIVING
EQUIPMENT CO.**
591 Washington Street, Quincy
Hours: 9:30-9:30 except Sun.

DICK MYERS SKINDIVERS WORLD
195 Lake Avenue, Worcester
Hours: 9-9 Seven Days
Free air to all 1961 customers

MICHIGAN

BILL & PAUL'S SPORTHAUS
1528 Lake Drive S.E., Grand Rapids
Hours: 9-9 Mon.-Fri.; 9-6 Sat.

BILMAR SPORT SHOP
212 E. Front Street, Traverse City
Hours: 8-6 Daily except Fri. until 9

DAVE'S SCUBA SHOP
3162 Packard, Ann Arbor
Hours: 3-9 Mon.-Fri.; 9-9 Sat. & Sun.

ERNIE'S SPORT SHOP
43271 Ford Road, Plymouth
Hours: 24 Hour Service — 7 days

**GRAND RAPIDS DIVERS
SUPPLY CO.**
502 Carrier N.E., Grand Rapids
Hours: Mon.-Thurs. 9-6; Fri. 9-9;
Sat. 8-8

LYLE HUNT & CO.
225 E. Michigan Ave., Jackson
Hours: 8:30-5:30 Mon.-Sat.

**MILLER & BOERMAN SPORTING
GOODS**
330 W. Michigan Avenue, Kalamazoo
Hours: 8:30-5:30; Wed. until 9 p.m.
Closed Thurs. p.m.

VERONA SPORTS MART
760 Capital Ave. N.E., Battle Creek
Hours: Mon. & Fri. 9-9; Tues.-Thurs.
and Sat. 9-6

MINNESOTA

**BRAINERD SKINDIVING
SUPPLY CO.**
1302 9th Avenue N.E., Brainerd
Hours: June-Sept. 9-6; Sun. 10-1 p.m.
Other times — Call 829-6953

THE DIVERS DEN
1013 West 47th Street, Hibbing
Hours: 24 Hour Service

HERMAN'S REPAIR SHOP
3225 East 42nd Street, Minneapolis
Hours: Evenings & Weekends

JACK THE FROGMAN CO.
4251 Nicollet Ave. So., Minneapolis
Hours: 9-9

JACOBSON BROS., INC.
99 Outer Drive, Silver Bay
Hours: 8-6

OLE LIND BOAT WORKS
109-111 E. Main Street, Detroit Lakes
Hours: 7:30-5

MARTY'S DIVING SUPPLY
Cohasset
Hours: 9-9

MIDWEST SKINDIVING SUPPLIES
405 So. Wabasha, St. Paul
Hours: 9:30-6 Mon.-Sat.
Summer 10-2 Sun. also

ST. CLOUD SKIN DIVER CO.
1703 3rd Street North, St. Cloud
Hours: 9-6 Weekdays; 9-12 Sundays

THE SEA HUT
1032 E. 4th Street, Duluth
Hours: 24 Hour Air Service

FIRE & SAFETY, INC. OF MINN.
416 So. Broadway, Rochester
Hours: 24 Hour Service

NELSON'S SKINDIVING CO.
Hector
Hours: Anytime

MISSISSIPPI

CENTRAL SCHOOL SUPPLY CO.
122 East Pearl Street, Jackson
Hours: 8-5

MISSOURI

CASEY'S SPORT STORES
210 No. Kirkwood Road, Kirkwood
(St. Louis)
Hours: 8:30-6

MONTANA

FEIDEN'S MARINA
RIW, Box 400, Great Falls
Hours: 9-9 May-Sept. incl. Sun. &
holidays; 9-5 regular

NEW HAMPSHIRE

COAST & LAKES DIVING SERVICE
48 Winter Street, Portsmouth
Hours: 5-10 p.m. & by appointment

SPORT & SALVAGE DIVING CO.
24 Seabee Street, Bedford
Hours: 7-11

NEW JERSEY

AQUA PRODUCTS

252 Fairway Avenue, Belleville
Hours: After 6 p.m.;
anytime weekends

DENVILLE BOAT & SPORT CENTER

Route 46, Denville
Hours: 4:30-9:30

WILLIAM M. LELICOTT HESS, INC.

308 Woodland Road, Point Pleasant
Beach
Hours: 24 Hours Daily

KELLY'S SKIN DIVERS SHOP

43 Chatham Street, North Plainfield
Hours: June-Sept. 10-10 7 days;
Oct.-May 7-10 daily

M.B.M. DIVING SUPPLIES

188 Main Street, Metuchen
Hours: 6 p.m.-9:30 p.m. Weekdays
10 a.m.-9 p.m. Sat.

SKIN DIVERS SUPPLY & SALVAGE CO.

326 Bloy Street, Hillside
Hours: 9-9

SKIN DIVERS WATER SPORTS SHOP

1051 Ringwood Ave., Haskell
Hours: 7-9:30 p.m. Mon.-Fri.; 1-9
p.m. Sat.; 9 a.m.-1 p.m. Sun.

NEW MEXICO

BARBEE WELDING SUPPLY CO.

1103 East Second St., Roswell
Hours: 7-6

NEW YORK

ALBANY WELDING SUPPLY CO., INC.

20 Center St., North Albany
Hours: 8-4:30

ANDY'S SPORTING GOODS INC.

270 River Street, Troy
Hours: 9-5:30 daily except Fri.
until 9

ANDERSON FIRE EQUIPMENT CO.

228 E. Union St., Bay Shore, Suffolk
Hours: 8-5:30 Mon.-Fri.; 8-12 Sat.
24 Hour Phone: MO. 5-6862

FILLIPECK'S UPHOLSTERING CO.

114 No. Main St., Ovid
Hours: 8-5 daily

GOLDSTOCKS SPORTING GOODS

121 N. Broadway, Schenectady
Hours: 9-6 Mon.-Sat. except Thurs.
9-9

HEMPSTEAD OUTDOOR STORE

99 Oakmont Ave., Hempstead
Hours: 9-7 Mon.-Fri.

MAIN CAMERA CENTER, INC.

332 East Main St., Rochester
Hours: 9:30-5:30 Mon.-Sat. except
Tues. & Thurs. until 9 p.m.

NAUM BROS., INC.

2373 Ridge Road West, Rochester
Hours: 9-9 Mon.-Fri.; 9-6 Sat.

SECURITY FIRE EQUIPMENT CO.

15 Jackson Ave., Middletown
Hours: 24 Hours

TREADWELL SHOP

1328 Commerce Ave., Bronx
Hours: 8-5

WESCO FIRE EQUIPMENT & SERVICE

121 Wildey Street, Tarrytown
Hours: 9-5 Daily; 9-1 Sat.;
Closed Sun.

DICK FISCHER ATHLETIC GOODS, INC.

221 Falls St., Niagara Falls
Hours: 10-5:30 p.m. except Thurs.
10-9:00 p.m.

MAC SNYDER'S ARMY & NAVY STORE

136 Surf Ave., Port Jefferson
Hours: 9-6

THE HAMPTON FIRE APPARATUS & EQUIPMENT CO.

School Street, The Springs
East Hampton, New York
Hours: 24 Hour Service —
Phone East Hampton 4-4944

GROTE'S BOATLANDING, INC.

33 Victor Herbert Rd., Lake Placid
Hours: 8-9 Summer; 8-5 Winter

OHIO

L.D.'S SKIN DIVING SHOP

(c/o Swinehart Marine Sales)
266 1/2 West Maine St., Ravenna
Hours: 9-5 & 6-8:30; closed Sun.

COLUMBUS SKINDIVING SUPPLY

2524 Sullivant Ave., Columbus
Hours: 9-6 Mon.-Sat.

WARREN MARINE & SPORT CENTER

2927 Mahoning Ave., Warren
Hours: 9-9 Mon.; 9-5:30 Tues.-Fri.;
9-4:30 Sat.

OREGON

BITTLER BROS. SPORT CENTER

West Hiway, Toledo
Hours: 8-6

COOS BAY WELDERS SUPPLY CO.

1060 N. Front, Coos Bay
Hours: 7:30-5

POLLOCK'S MARINA

Junction Hwy. 99 & 199 — Just South
of Caveman's Bridge, Grants Pass
Hours: 8-6

PENNSYLVANIA

DENIO TV & APPLIANCE

532 Main Street, Clarion
Hours: 8:30-5 except Sun.

DIVER DOWN ASSOCIATES

103 North State St., Newton
Bucks County
Hours: Noon-9 Weekdays; 9-9 Sat.

FENJOHN COMPANY

90 Cricket Ave., Ardmore
(Montgomery)
Hours: 9-5 Mon.-Fri.; Sat. a.m. May
15 to Labor Day

LEWIS-DUNCAN SPORTING GOODS

Narrows Shopping Center, Kingston
Hours: 10-9

THE SPORTSMAN'S PARADISE STORE

320 E. Butler Ave., Ambler
Hours: 9-9

CARL H. YETZER JR.

Box 228, St. Marys
Hours: 8-5 7 days or by appointment

C.S.&Y. DIVE SHOP

410 Cabbage St., Carnegie
Hours: 6 p.m.-9 p.m. Mon.-Tues.
9-30 a.m.-5:30 p.m. Sat.

RHODE ISLAND

GEORGE CLIFF ADAMS

Dawson Street, Harmony
Hours: 24 Hours — Emergency Service

JOSEPH J. BROWN COMPANY

5 Aborn Street, Cranston
Hours: 8-5 Mon.-Sat.

TENNESSEE

MID-SOUTH MEDICAL GASES

651 Jefferson, Memphis
Hours: 8-5 Mon.-Fri.; 8-12 noon Sat.

TEXAS

DAN'S

6310 N. Lamar, Austin
Hours: 9-9

BLUE LIGHT AIR STATION

1105 South 15th St., Copperas Cove
Hours: 24 Hour Service

DAVIS HARDWARE

317 Congress, Austin, 8:00-5:30
49th & Burnet Rd., Austin, 8:30-8:00

SKIN DIVERS SUPPLY

1232 Euclid, Beaumont
Hours: 24 Hour Service

WASHINGTON

COAST TO COAST STORES

2631 Colby Ave., Everett
Hours: 8:30-5:30 Mon.-Sat.

WISCONSIN

AQUA SPORT SHOP

1024 River St., Spooner
Hours: 8-5:30

BROOKFIELD SKIN DIVING SUPPLY & SCHOOL

270 No. Moorland Rd. (City. Trunk O)
Brookfield

Hours: 9-9 Seven Days

ENGERTON'S AQUA SHOP

1517 E. Marion, Appleton
Hours: All Hours

HI-LO DIVING

1317 No. 19th St., Milwaukee
Hours: 3-9 p.m. Mon.-Sat. (Winter)
9-9 p.m. Mon.-Sat. (Summer)

MARTWICK'S BAIT & SPORT SHOP

286 North Lake Ave., Phillips
Hours: 8-9

SHEPHERD & SCHALLER SPORTING GOODS, INC.

212 Scott St., Wausau
Hours: 8:30-5 Mon.-Sat. except Mon.
& Wed. until 9 p.m.

SEELIG'S SPORT SHOP

132 Iowa Ave., Hayward
Hours: 8-9 p.m. Daily

SKIN DIVERS EQUIPMENT CENTER

1517 Belknap St., Superior
Hours: 9-6

SKIN DIVERS SALES & SERVICE CO.

929 S. Park St., Madison
Hours: 7-8 p.m.

SPORT DIVER CORP.

3810 West Lisbon Ave., Milwaukee
Hours: 9-9 Mon., Wed., Fri.
9-6 Tues., Thurs., Sat.

VALLEY DIVER'S SERVICE

815 E. Hancock St., Appleton
Hours: Evenings

WEST BEND AQUA SHOP

311 Highland Dr., R. R. 3, West Bend
(Barton)
Hours: 24 Hour Service

BODIN'S SEAWAY MARINA

Lake Shore Dr., Highway 2, Ashland
Hours: 8 a.m.-9 p.m. (June 1-
Sept. 10)

CANADA

BURDEN'S DIVING SUPPLY

35 Alfred St., Trenton
Hours: Anytime — day or night

BYSHE & COMPANY

223 Bank Street, Ottawa
Hours: 8:30-6

COGHLAN'S SPORTS & SCUBA CENTRE

265 Park Street
Port Arthur, Ontario, Canada
Hours: 9-5:30

FRED MARTIN AGENCIES

121 Smith St., Winnipeg
Hours: 8:30-5 Weekdays
8:30-12 Sat.

LLOYD SHALES HOBBY SUPPLIES

208 Division St., Kingston
Hours: 9-6 Mon., Tues., Thurs., Sat.,
9-1 Wed., 9-9 Fri.

SAFETY BOSS LIMITED

P.O. Box 137, Drayton Valley,
Alberta
Hours: 8-6

HUNTER'S SPORT SHOP LTD.

North Battleford, Sask.
Hours: 9-6 Mon.-Sat. except Wed.
9-12 noon

THE
Cornelius
COMPANY

550 39TH AVENUE N.E.
MINNEAPOLIS 21, MINNESOTA



GOLD DIVING SCHOOL!
GOLD DREDGES BIG & SMALL!
GOLD POWER SNIPER!
GOLD ACCESSORIES COMPLETE!
GOLD DIVING BOOK!

SEND \$1.00 FOR BOOK "GOLD DIVING" TO

MEL'S AQUA SHOP

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REDONDO BEACH, CALIFORNIA
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Everything You Want!

SPORTSWAYS
WATERLUNG

"NAVY UNIT" COMBINATIONS

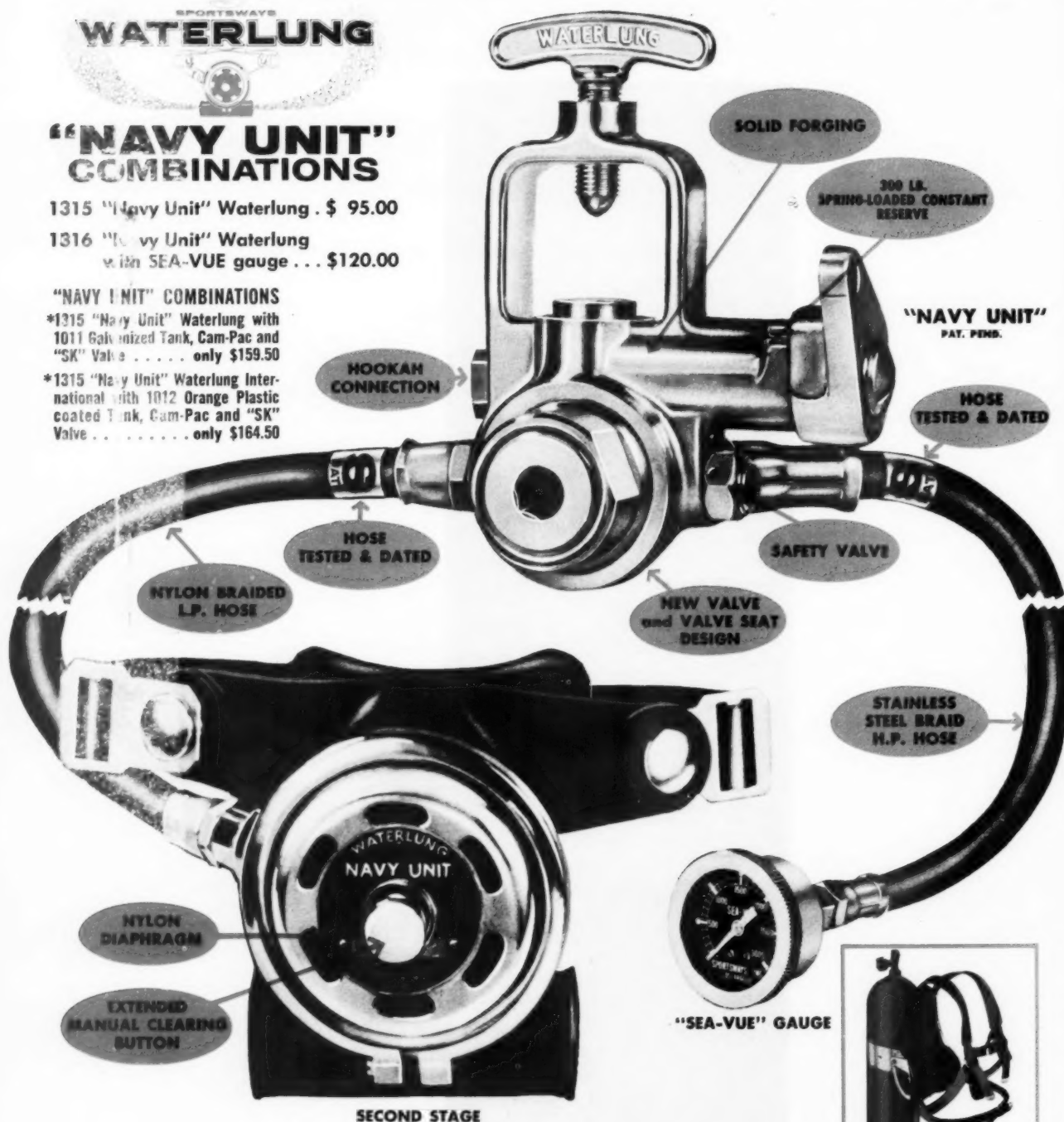
1315 "Navy Unit" Waterlung . \$ 95.00

1316 "Navy Unit" Waterlung
with SEA-VUE gauge . . . \$120.00

"NAVY UNIT" COMBINATIONS

*1315 "Navy Unit" Waterlung with
1011 Galvanized Tank, Cam-Pac and
"SK" Valve only \$159.50

*1315 "Navy Unit" Waterlung Inter-
national with 1012 Orange Plastic
coated Tank, Cam-Pac and "SK"
Valve only \$164.50



Here in Sportsways "Navy Unit" Waterlung is everything you'll ever want—the criterion of all diving regulators. Many exclusive features offer more functional advantages than in any regulator ever developed. Safety is inherent in the "Navy Unit" with its integral

300 PSI spring loaded constant reserve; allowing safe diving and use with any type of tank valve. And the "Navy Unit" design eliminates the extra cost of a reserve valve when additional tanks are purchased.

*"SK" Single Tank assembly. Complete with new "Cam-Pac". Available with Galvanized finish or International Orange plastic exterior finish over Galvanizing.

THE WORLD'S MOST
ADVANCED REGULATORS...by...



THE WORLD'S MOST ADVANCED DIVING EQUIPMENT
SPORTSWAYS, INC.

A Subsidiary of Shore California, Inc.
7701 E COMPTON BLVD • PARAMOUNT, CALIF.

a) **NEW RIP BELT** with new interwoven nylon tape fastener. Opens instantly with a pull — closes with a stroke. No buckles, hooks or locks to tangle. Easily adjusted to size.

Cat. #59

Price \$3.95

b) **DELUXE WEIGHT BELT** Top grade 2" nylon with corrosion proof airplane type aluminum quick release buckle.

Cat. #70

Price \$3.95

c) **STANDARD WEIGHT BELT** Durable 2" nylon with no-spring positive release buckle and slides.

Cat. #65

Price \$2.95



EAR POP Non toxic vaso-constricting preparation. Buffered solution does not contain strong acid or mercurial preservatives, avoids burning or stinging of nasal mucosa. May be used for extended periods without dangers of sensitization. 15cc spray bottle.

Cat. #117

Price \$1.50

MOTION SICKNESS CAPSULES These long-acting capsules keep you free of motion sickness all day. One pill gives up to eight hours of diving or boating pleasure. Free from side effects. Can be used day after day if needed. Twenty capsules to bottle.

Cat. #116

Price \$1.95



STITCHED DIVERS FLAG Cloth flag for your boat or float. Promotes the divers flag safety program. 35" x 36" boat size.

Cat. #40

Price \$2.95

Also available in smaller size for float 15" x 16"

Cat. #39

Price \$1.79



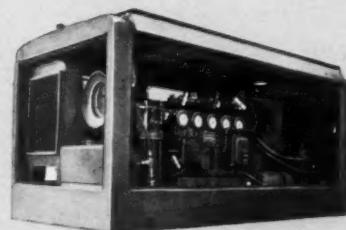
INSTANT INFLATOR Universal attachment fits standard tank valves. Using air from your tank, inflate a rubber boat, flat tire, etc.

Cat. #107

Price \$8.95

SURPLUS RIX COMPRESSOR, TYPE K-3500 psi

These U.S. Gov't. surplus water-cooled compressors are completely self-contained. Can be operated inside or outside of building. Ideal for truck mounted SCUBA air station. We need room, and prices are reduced to move these machines. Formerly sold for \$1895.00. While they last only \$1250.00.



Additional information and specifications are available on request.

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Rush me your Seacraft Catalog. I am enclosing 50c to defray cost of mailing which will be deducted from my first \$5.00 order.

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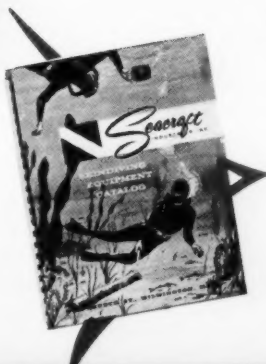
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Please send me. _____

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Seacraft
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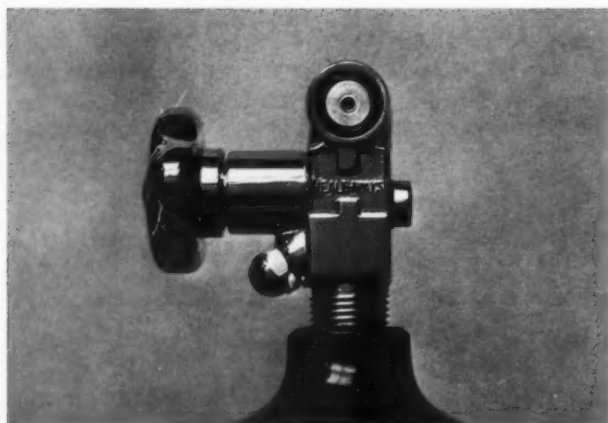
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DESIGNED FOR DIVERS

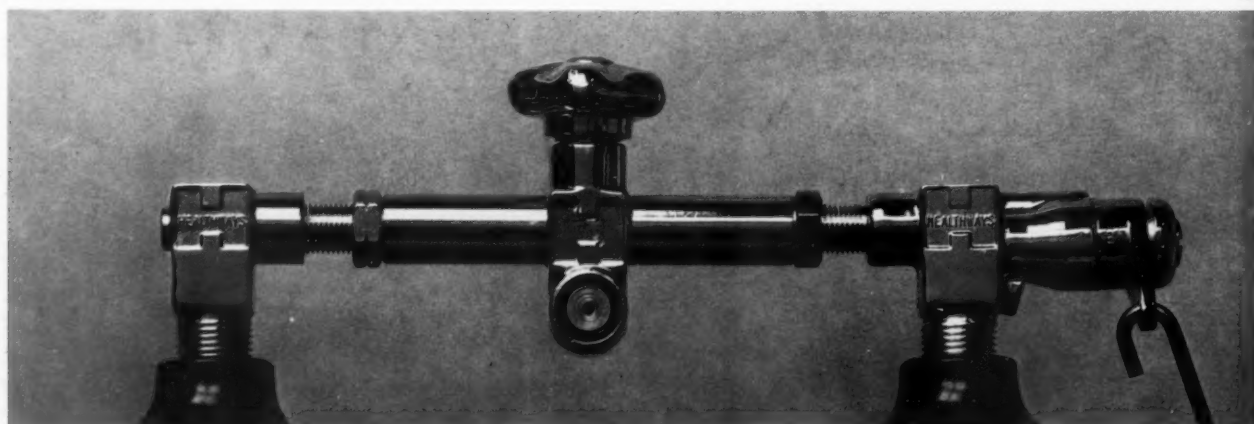


PROFESSIONAL High-Pressure Valve
Easy-Action control wheel for positive safety.

No. 1652 \$8.95



PROFESSIONAL Constant Air Reserve Valve No. 1654 \$29.95
Fool-proof reserve mechanism. Easy-Action control wheel.



PROFESSIONAL 'double-tank' Constant Air Reserve Valve No. 1653 \$49.95

Completely adjustable 'turn-buckle' action provides simple installation. Easy-Action control wheel for positive safety.

Healthways PROFESSIONAL Valves are specifically designed for SCUBA diving... the safest and most thoroughly engineered valves available... designed by Professionals to meet the strictest requirements of the discriminating diver. The Easy-Action control wheel on the single-tank valves is positioned on the side, creating a low profile and providing easy manipulation. The 'easy-action' is due to the self-lubricating TEFLON packing. All Healthways PROFESSIONAL Valves contain an absolutely fool-proof safety plug. Healthways exclusively features a High-Pressure outlet that is connected downstream of the shut-off... permitting the diver to remove the High-Pressure plug and to install a Scub-Air Tank Pressure Gauge while tank is full of air. Dive the SAFE way — with Healthways Valves DESIGNED BY PROFESSIONALS.

PROFESSIONAL BLACK TANKS

After diligent research Healthways discovered the ultimate coating for SCUBA tanks. The baked-on EPOXY black resin coating — retards migration of oxidation... resists the elements and roughest handling. Dive the PROFESSIONAL way — with Healthways SAFETY BLACK Tanks.

Healthways



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\$29.95



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ding easy
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